

Abstract

Title of Document: EXAMINING SEXUAL VICTIMIZATION
AMONG WOMEN: DO ECOLOGICAL
FACTORS PREDICT THE SEVERITY OF
SEXUAL ASSAULT?

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Rape and other forms of sexual victimization against women are considered to be among the most severe and underreported crimes in the United States. Although all forms of sexual assault can be traumatic, there is research to suggest that the more severe the assault; specifically, the greater level of threat or violence, the greater the level of psychological distress a victim will experience following the attack. One of the most inconsistent and understudied areas in rape-related research involves the examination of sexual assault severity. This limitation is unfortunate given the evidence suggesting that recovery from sexual assault trauma may be mitigated or exacerbated by severity of the assault. Knowledge regarding sexual assault severity may help explain why some women report better psychological functioning than others following the attack. The guiding theoretical perspective for this study is based in Bronfenbrenner's ecological theory. The purpose of this study is to empirically examine individual, familial, and

community level factors and the impact these factors have on severity of sexual assault experienced by a diverse sample of women in the United States. A secondary analysis was conducted using data from the National Crime Victimization Survey from 1992-2005. The sample included Asian, Hispanic, Native American, non-Hispanic Black, and non-Hispanic White women, 12 years of age or older, reporting at least one sexual assault incident. Using multinomial logistic regression, results indicated that marital status including divorced, separated, or widowed women, and relationship to offender such as current or former spouse, other family member, boy/girlfriend, and acquaintance proved to be risk factors for severity of sexual assault among the sample. Older age, other victimization experiences, children present in the household, and work the previous week were found to have a protective influence on severity of sexual assault. The current findings underscore the importance for additional research investigating women of color as protective and risk factors were present for each race/ethnicity examined and also adds to the body of knowledge regarding severity of sexual assault.

EXAMINING SEXUAL VICTIMIZATION AMONG WOMEN: DO
ECOLOGICAL FACTORS PREDICT THE SEVERITY OF
SEXUAL ASSAULT?

By

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Chapter 1: Introduction

Rape and other forms of sexual victimization against women are considered to be among the most severe and under reported crimes in the United States (Layman, Gidycz, & Lynn, 1996; Lee, Pomeroy, & Rheinboldt, 2005; Sable, Danis, Mauzy, & Gallagher, 2006). The occurrence of sexual assaults against women has been described as an epidemic social problem with lasting emotional and physical effects for victims (Castello, Coomer, Stillwell, & Cate, 2006; Jimenez & Abreu, 2003; Lonsway & Fitzgerald, 1994; McMullin & White, 2006; Miller, Markman, & Handley, 2007). Although all forms of sexual victimization can be traumatic, there is research to suggest that the more severe the assault; specifically, the greater level of threat or violence, the greater the level of psychological distress a victim will experience following the attack (Neville & Heppner, 1999; Ullman, Filipas, Townsend, & Starzynski, 2007). This research suggests that variation in severity of rape and other forms of sexual violence exists on a continuum of violence severity. Researchers have described this continuum of sexual violence ranging from “simple” or less violent to “aggravated” sexual assault that involves more violence (Addington & Rennison, 2008, p. 206).

Despite increased attention given to policy designed to reduce violence against women and research investigating sexual assault, one of the most inconsistent, understudied areas in rape-related research involves the examination of sexual assault severity (Neville & Heppner, 1999; Wyatt, Notgrass, & Newcomb, 1990). This limitation is unfortunate given the evidence that suggests recovery from sexual assault trauma may be mitigated or exacerbated by severity of the assault (Addington &

Rennison, 2008; Bownes, O’Gorman, & Sayers, 1991; Neville & Heppner, 1999; Ullman et al., 2007).

The effects of sexual violence differ from other violent crimes in terms of psychological impact on a victim and societal reactions to the event (Frese, Moya, & Megias, 2004; Meyer & Taylor, 1986; Starzynski, Ullman, Filipas, Townsend, 2005). Specifically, Campbell and colleagues (2009) conclude that, “rape is one of the most severe of all traumas, causing multiple, long-term negative outcomes” (p. 225). Sexual assault survivors frequently experience long-term psychological and physical consequences following the assault (Castello et al., 2006; Kaltman, Krupnick, Stockton, Hooper, & Green, 2005; White Kress, Trippany, & Nolan, 2003; Littleton & Radecki Breitkopf, 2006; Meyer & Taylor, 1986; Sturza & Campbell, 2005). Although many survivors report distinctive post-victimization reactions such as acute and chronic heightened fear, social withdrawal, anxious arousal, or poor physical health, not all victims will have specific post-assault reactions (Bright & Bowland, 2008; Neville, Heppner, Oh, Spanierman, & Clark, 2004). Of those that do experience these reactions the frequency and duration may vary considerably from victim to victim (Foa & Riggs, 1995). Level of violence or severity of the assault itself may help to explain the variations in victim reactions. Specifically, researchers examining post-traumatic stress disorder in combat veterans and individuals in motor vehicle accidents have overwhelmingly concluded that trauma severity is one of the main risk factors in the development of prolonged psychological and emotional distress (Dörfel, Rabe, & Karl, 2008; Fujita & Nishida, 2008; Neville & Heppner, 1999; Norris & Feldman-Summers, 1981).

There is little doubt that sexual assault is a “trauma-inducing event” with lasting effects for victims (Elloit, Mok, & Briere, 2004, p. 209). However, researchers examining post-traumatic stress disorder following female rape also suggest that the presence of trauma alone is not sufficient in determining the development of post-traumatic stress disorder (Gutner, Rizvi, Monson, & Resick, 2006). Rather, trauma severity may further explain why some individuals report better psychological functioning than others following a traumatic event (Dörfel, et al., 2008; Fujita & Nishida, 2008; Neville & Heppner, 1999; Norris & Feldman-Summers, 1981). Specifically, there is research, however limited, to suggest that the degree of severity in sexual assaults is exacerbated by factors such as physical violence, threat of violence, completed or attempted rape, use of a weapon, or multiple assailants (Elloit et al., 2004; Norris & Feldman-Summers, 1981; Ullman et al., 2007; Wyatt et al., 1990). Moreover, research conducted by Eadie and colleagues (2008) concluded that the more severe the sexual assault experience, the more likely a victim will develop post-traumatic stress disorder and other significant physical or emotional health difficulties. Based on what is known about sexual assault and trauma, severity of sexual assault worsens the overall trauma experience thus increasing the possibility of developing post-assault problematic behaviors (Bownes et al., 1991; Eadie, Runtz, & Spencer-Rodgers, 2008; Gutner et al., 2006; Kilcommons, Morrison, Knight, & Lobban, 2008; Wyatt et al., 1990).

As multiple factors may play a role in severity of the assault, there is evidence to suggest that in order to fully understand sexual victimization, it is also critically important to examine the social and ecological context in which the trauma took place (Neville et al., 2004; Ullman et al., 2007). Many studies examining sexual victimization

have focused on uni-dimensional explanations without taking into account the integrative, complex relationship that exists among individual, familial, or socio-cultural factors that may contribute to sexual assault (Grauerholz, 2000; Lauritsen, 2001). The guiding theoretical perspective for this study is based in Bronfenbrenner's ecological theory (1979) and assumes that individual behavior can only be understood by examining individual, family, and community influences (Hernandez Jozefowicz-Simbeni, 2008; Prelow, Bowman, & Weaver, 2007). Ecological theory allows for a more comprehensive understanding of sexual assault in an attempt to unify and address how individual, familial, and socio-cultural context may influence sexual assault severity. Although there are studies that have examined ecological factors in predicting sexual assault or violence against women in general (e.g., Dugan & Apel, 2003; Grauerholtz, 2000; Lauritsen, 2001; Lauritsen & Schaum, 2004; Thompson, Saltzman, & Johnson, 2001, 2003), there is a paucity of studies examining a possible link between ecological factors and assault-related characteristics such as severity of the sexual assault.

When examining complex social problems, researchers have introduced the idea of risk factors together with ecological theory (Perkins & Hartless, 2002; Small & Luster 1994). Specifically, individuals are consistently shaped and influenced by interactive systemic effects from the individual, family, community, and larger societal level systems (Bronfenbrenner, 1979; Perkins & Hartless, 2002; Small & Luster 1994). Whether a factor functions as a risk or protective factor is likely dependent on contextual variables (Prelow et al., 2007). An ecological model allows researchers to examine how the *lack* of factors within these integrated systems may influence the overall well-being of the individual (Small & Luster, 1994). Although every woman could potentially be a target

of sexual assault, there are environmental or individual factors that may increase the likelihood of sexual victimization (Grauerholtz, 2000).

Sexual assault survivors often do not report their victimization to criminal justice professionals or seek medical or mental health assistance following the assault (McGregor, 2005, Wyatt et al., 1990). Societal attitudes toward sexual violence and victims may influence reporting of such crimes (Lee et al., 2005; Withey, 2007). Although many women are treated with skepticism when disclosing sexual assault, minority women and women of color have historically been treated with greater skepticism and tend to receive additional negative social reactions when disclosing (Starzynski et al., 2005). As many victims do not report their sexual victimization experiences, it has been difficult for researchers to gather and collect data on large, culturally diverse samples of women. Very little is known about the experiences of women from different race and ethnic groups in relation to sexual assault. Official data are lacking in determining an accurate number of sexual assault victims. However, there is research to suggest that women are more likely to report victimization when they are guaranteed anonymity and assured of no police involvement (McGregor, 2005; Wyatt et al., 1990).

Although research in the victimization experiences of women has flourished in recent years, there is a “considerable knowledge gap” regarding the victimization experiences of women from different racial and ethnic backgrounds (Dugan & Apel, 2003, p. 959). While researchers have examined possible assault characteristics as indicators of severity, no known study has examined possible ecological predictors leading to assault severity or how these factors may vary based on race/ethnicity. Having

a better understanding surrounding severity of sexual assault for women from various backgrounds may ultimately assist in determining appropriate interventions to assist survivors in the recovery process and may also have important implications for program and policy development.

The National Crime Victimization Survey [hereafter referred to as NCVS] was designed to provide accurate and reliable estimates of criminal activity across the country. Survey data are collected through a random sample of respondents; these data are independent and not a part of official criminal justice recording practices and thus, may be more accurate in recording information relating to sexual assault against women. The NCVS provides nationally representative data that includes and permits the study of crime victimization factors. The NCVS began in 1972 and has been a cornerstone in crime victimization research and a valuable source in constructing national indicators of crime. The NCVS uses a rotating panel design interviewing each household selected a total of seven times at six month intervals (Mosher, Miethe, & Phillips, 2002). Moreover, the NCVS is also the only source to collect data on ecological characteristics that include individual, family, and community-level factors that help to explain the context of the crime. The NCVS also collects data on crime details. Of particular importance to this study, the NCVS collects information on factors indicating severity of assault such as degree of violence and whether the victim sought medical attention, victim/offender relationship, completed or attempted rape, use of a weapon, and number of assailants.

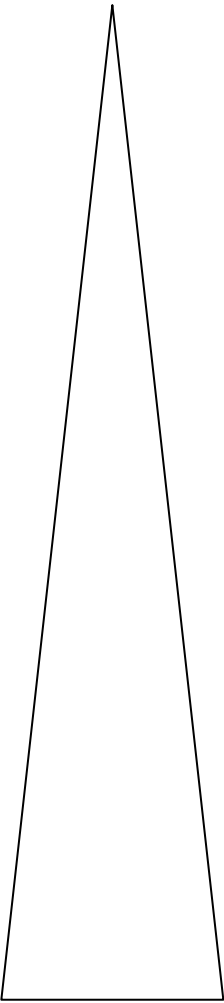
The purpose of this research is to build on previous research and provide an empirical examination of ecological factors and the impact these factors have on severity

of sexual assault experienced by Asian, Hispanic, Native American, non-Hispanic Black, and non-Hispanic White women in the United States. Sexual assault victims frequently experience long-term psychological and physical consequences following the assault (Castello et al., 2006; Kaltman et al., 2005; White Kress et al., 2003; Littleton & Radecki Breitkopf, 2006; Meyer & Taylor, 1986; Sturza & Campbell, 2005). Yet, research has been inconsistent in examining what factors may curtail or intensify the trauma experience for assault survivors (Koss & Burkhardt, 1989). This inconsistent information is critical to address, given the evidence suggesting that the severity of the assault has been linked with more severe post-assault distress (Ullman et al., 2007). While there is research to predict sexual assault, little is known regarding predictors of severity. This research attempts to address this issue by using predictor of sexual assault as a proxy for severity.

When discussing sexual assault severity, some researchers have suggested a continuum of violence beginning with the least amount of harm to the most severe form of violence (Addington & Rennison, 2008). Table 1 on the following page illustrates the continuum of violence. The least severe form of sexual violence would constitute a threat of violence or one in which there is no physical contact between the offender and victim but the victim felt harm. Followed by an attempted sexual assault or rape which constitutes a moderate amount of violence but the actual act of sexual assault or rape was not completed. A completed act of sexual assault would be next on the continuum and described as any unwanted sexual contact other than rape with a more than moderate amount of harm. Last on the continuum and described as the most severe form of harm to a victim would be a completed rape or forced sexual intercourse that also may include

penetration with an object. Violence perpetrated against another person often cannot be neatly defined and classified into categories; however, for the purpose of this research severity will be described on this continuum of sexual violence and will be further discussed in the following chapters.

Table 1: Continuum of Sexual Violence, Level of Severity

Severity Level	Sexual Assault Type	Definition
Least severe		
	Threat	A threatening situation in which there was no physical contact between the offender and victim but the victim felt that physical harm could have occurred. This included nonverbal threats, e.g., brandishing a weapon or verbal threats of physical harm which were made in person. Threats made over the telephone or threatening letters were not included.
	Attempted Rape	Attempted attacks generally involved (unwanted) sexual contact between victim and offender. A non-completed act of rape or sexual assault is considered an attempted rape or sexual assault.
	Sexual Assault	A wide range of victimizations, separate from rape or attempted rape. These crimes included attacks generally involving (unwanted) sexual contact between victim and offender. Sexual assaults may or may not involve force, such as grabbing or fondling. Sexual assault included incidents other than rape or attempted rape.
	Rape	Forced sexual intercourse, included both psychological coercion as well as physical force. Forced sexual intercourse meant vaginal, anal, or oral penetration by the offender(s). This category also included incidents where the penetration was from a foreign object such as a bottle.
Most Severe		

Although one may assume a more severe assault would lead to greater psychological distress, there is a need for additional research. Using secondary data from

the NCVS, this study employs an ecological model to predict severity of the sexual assault in a sample of women from racially ethnically diverse backgrounds. There is a paucity of studies to examine sexual assault from this perspective. This research will help to provide a contextualized understanding of the severity of sexual victimization. The characteristics of the assault itself may play a pivotal role in broadening sexual assault research and in developing prevention or intervention programs to assist survivors. Understanding severity of sexual assault may influence the recovery process for survivors and could ultimately have important implications for program and policy development. To assist in this understanding, using secondary data, the following exploratory research questions are addressed: 1) can a valid and reliable scale of sexual assault severity be developed; 2) are there ecological factors that predict severity of sexual assault; and 3) for each race/ethnicity category, to what extent do ecological factors influence severity of assault?

Chapter 2: Review of Literature

This chapter outlines assault characteristics in the development of the severity scale followed by the guiding theoretical perspective and conceptual framework for this research. Previous research exploring sexual victimization is identified and examined. Additionally, the possible role this research will play in advancing rape-related literature is described along with specific research questions.

Assault Characteristics

Although all forms of sexual victimization can be traumatic, there is research to suggest the more severe the assault, the more likely a victim will experience more deleterious forms of post-rape trauma (Bownes et al., 1991; Ullman et al., 2007). Starzynski and colleagues (2005) found that “women who felt their lives were in danger often developed more severe psychological symptomology like post-traumatic stress disorder...” (p. 429). In general, rape and attempted rape have been described as the most serious forms of sexual victimization (Wyatt et al., 1990). Even more distressing, when involving family members, severity of assault may increase over time (Thompson et al., 2001). Read and colleagues (2005) stress the importance of developing a universal severity scale in an attempt to classify physical and emotional injuries to assist in the documentation of sexual victimization experiences. A severity scale coupled with the collection of DNA evidence could ultimately support prosecution efforts in sexual assault cases (Read, Kufera, Jackson, & Dischinger, 2005). Additionally, the uncovering of aspects related to severity of the trauma may also be critical in “defining patterns of injury” (Read et al., 2005, p. 277) in an attempt to isolate specific ecological factors that coincide with various injury patterns.

More research is needed in the exploration of assault severity. Unfortunately, little empirical information exists on the nature of assault. For example, a victim's acknowledgement of the sexual assault may be contingent on severity of the injury sustained during the victimization experience (Oros, Leonard, & Koss, 1980). Further, the manner in which the victim acknowledges or defines the sexual assault experience can be critical in coping and recovering (Littleton & Radecki Breitkopf, 2006). Many victims of acquaintance or date rape do not conceptualize or acknowledge the assault as "rape" and therefore, do not report the crime to the police (Layman et al., 1996; McGregor, 2005). Koss (1985) examined this phenomenon to assess what factors differentiate acknowledged rape victims from unacknowledged rape victims. In this study, Koss defined an *unacknowledged rape* victim as, "a woman who experienced sexual assault that would legally qualify as rape but who does not conceptualize herself as a rape victim" (p. 195). A majority of unacknowledged rape victims were acquainted with and had previous sexual contact with the assailant. Unacknowledged rape victims often do not label the sexual assault as "rape" but use much more benign labels (e.g., just a miscommunication) to describe the experience (Littleton & Radecki Breitkopf, 2006). It is, therefore, understandable why a woman who defines her experience as rape would consider the assault a more serious event than would a victim that did not feel she had been raped (Littleton & Radecki Breitkopf, 2006).

Similar to Koss (1985), Layman and colleagues (1996) concluded that acknowledged rape victims were more likely to classify their assaults as being more forceful in that these victims resisted more and made refusal of sexual advances clear to the perpetrator. Acknowledged rape victims were also more likely to press charges

against the assailant and had higher levels of post-traumatic stress disorder and stress related to the rape. Moreover, research conducted by McMullin and White (2006) concluded that women who experienced less physical injury as a result of the rape were less likely to acknowledge the experience as rape. However, besides physical injury, there are other factors that may play a role in exacerbating severity of the assault (Bownes et al., 1991).

Specifically, there is research to suggest that the degree of severity in sexual assaults is exacerbated by factors such as physical injury/violence, completed or attempted rape, use of a weapon, or multiple assailants (Bownes et al., 1991; Elloit et al., 2004; Norris & Feldman-Summers, 1981; Stermac, Del Bove, Brazeau, & Bainbridge, 2006; Ullman et al., 2007; Wyatt et al., 1990). Moreover, research conducted by Eadie and colleagues (2008) concluded that the more severe the sexual assault experience, the more likely a victim will develop post-traumatic stress disorder and other significant physical or emotional health difficulties. Based on what is known about sexual assault and trauma, severity of sexual assault worsens the overall trauma experience thus increasing the possibility of developing post-assault problematic behaviors (Eadie et al., 2008; Gutner et al., 2006; Kilcommons et al., 2008; Wyatt et al., 1990). Unfortunately, most of the research examining sexual assault severity is in reference to post-victimization reactions and the development of post-traumatic stress disorder, depression, and other health and psychological outcomes. Ullman (2007) reports that severity of the assault impacts assault disclosure and consequent help seeking behaviors.

Very little information exists on possible factors that may have an impact on severity of the assault. A plethora of studies have examined predictors of sexual assault;

however, no known studies have explored sexual assault severity. Because no known research exists, designing a possible study examining predictors that could impact severity would be difficult. As a result, this research will use existing literature regarding predictors of sexual assault as a proxy for severity. While no research exists on severity, the current study is a critical first step in examining sexual assault severity.

Theoretical/Conceptual Framework

Researchers, policymakers, and practitioners in the social sciences have continued to grapple with issues surrounding the etiology of criminal behavior. Regardless of one's theoretical perspective, crime is a social phenomenon that often impacts individuals, families, and society on multiple levels. According to Cullen and Agnew (2006) "crime is multifaceted and potentially shaped by a range of factors that operate inside and outside individuals,...exists on the macro level and the micro level, and... have effects across various points in the life cycle" (p. 1). Griffin (1971) distinguished rape as the "all-American crime," positing "forcible rape is the most frequently committed violent crime in America..." (p. 27). According to the National Violence Against Women Survey, 17.6 percent of adult women experienced a completed or attempted rape during a lifetime (Tjaden & Thoennes, 2000). Although sexual victimization occurs between individuals, it is vital to understand how the context in which individuals operate may foster, sustain, and perpetuate violence against women (Mancini, Nelson, & Bowen, & Martin, 2006). For example, Lauritsen and Schaum (2004) conclude:

most violence research has been at either the individual- or community-level of analysis, rather than at multiple levels. The meaning of significant relationships, such as socioeconomic status, race, or ethnicity have been therefore difficult to discern. For instance socioeconomic level may reflect processes operating at the individual, family, or community level. It may be important because it influences an individual's values, frustrations, or lifestyle, alters a family's relationships or

challenges, or limits options for housing or type of community. To better understand these correlates and further develop theories of violence, we must understand how violence is distributed across individuals, families, and communities. (p. 324)

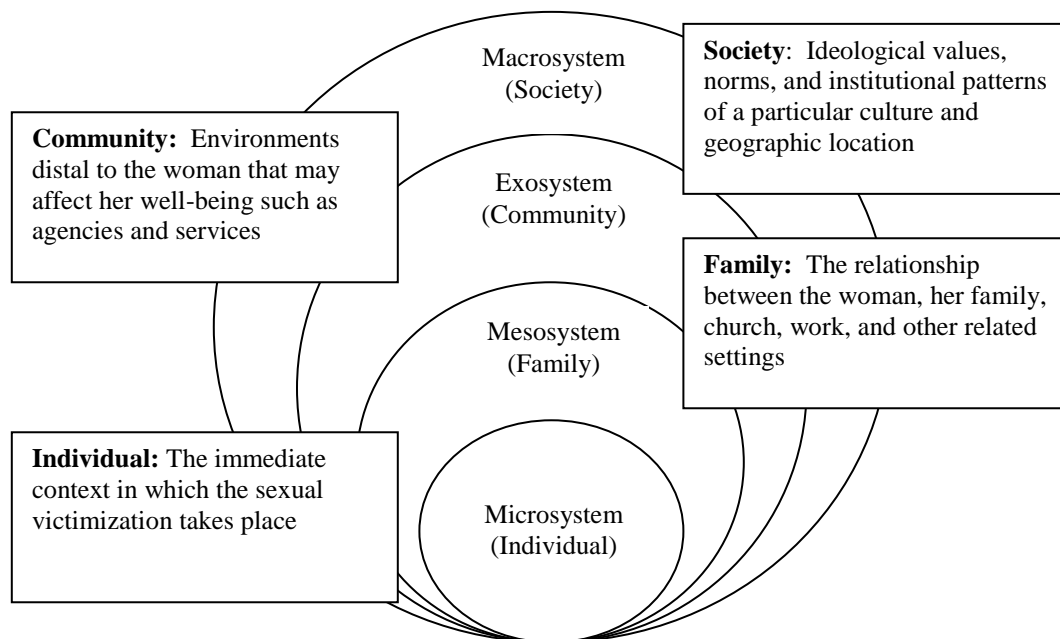
Anderson (1993) asserts that in order to fully comprehend human systems, the context in which these individuals exist must also be acknowledged and examined. For example, the experiences and subsequent behaviors of individuals are ultimately shaped by multiple systems of influence that include parents, siblings, and also a broader context of systems such as school, work environment, peer group and community (Flynn Corwyn & Bradley, 2005). To better understand sexual assault severity, it is important to explore this phenomenon through multiple systems that form the context in which victimization occurs. As some researchers contend, “sexual assault does not occur in social or cultural isolation...” (Campbell, Dworkin, & Cabral, 2009, p. 226). For this reason, Heise (1998) recommends the adoption of an ecological framework to understanding violence against women. Sexual assault experiences must be examined through an ecological lens in order to capture all critical systems at play.

Ecological theory, first postulated by Bronfenbrenner (1979, 1986), was identified by the National Research Council as the best theoretical model to help address the causes, consequences, and possible treatments or interventions for family violence (U.S. Department of Health and Human Services, as cited in Little & Kaufman Kantor, 2002). Although sexual victimization often involves nonfamily members, ecological theory remains an effective approach in understanding the dynamics surrounding violence against women (Heise, 1998). Specifically, according to Little and Kaufman Kantor (2002) “ecological models offer a broad-base conceptualization that take into account the complex interactions among individuals, family, community, and society risk factors...”

(p. 134). Additionally, Campbell and colleagues (2009) assert that the ultimate “utility of an ecological framework is that it can suggest multiple strategies, at multiple levels of analysis, for alleviating the psychological harm caused by sexual assault” (p. 226).

In order to examine this multifaceted issue, a multidimensional theory is required. Figure 1 below illustrates how multiple systems can interact to perpetuate the occurrence of sexual assault. Ecological theory is a multidimensional theory that addresses individual, family, and community/cultural variables. Specifically, an ecological framework incorporates multiple “nested” levels that impact the individual, in context to his/her living environment and community, while taking into account multiple socio-cultural influences. This theory is particularly apropos for women as multiple forces (e.g., internal and external forces to the individual and the community) may be at play and place additional burdens on the victim, family, and community.

Figure 1: Bronfenbrenner’s Ecological Model Examining Sexual Assault*



*Information contained under each system in the model was excerpt from Teaster, Roberto, and Dugar (2006).

Briefly, ecological theory is based on the notion that behavior results from interactions within multiple systems (Bronfenbrenner, 1986). More specifically, “Bronfenbrenner’s model subdivides environmental influences into multiple levels reflecting the relative size, immediacy of interactions and degree of formality/informality of the environmental setting” (Campbell et al., 2009, p. 227). The different levels represent, the micro level (i.e., individual), mesosystem (i.e., family), exosystem (community or neighborhood), and the macrosystem (society/cultural influences). A breakdown in any one system creates a ripple effect impacting all other systems. An example of this ripple effect could be seen with a child who is experiencing problems within his/her family, these issues may then trigger the child to act out in school thus impacting multiple systems. The problems experienced within the child’s family or the mesosystem, spilled over into the child’s school or exosystem, causing a ripple effect. As a result, in order to fully understand the problem, all systems must be examined.

To further explain, the microsystem represents individual characteristics and interconnects with and is influenced by the other systems (Teaster, Roberto, & Dugar, 2006). This level “focuses on direct interpersonal interactions between individuals and members of their immediate environments such as family, friends, and peers” (Campbell et al., 2009, p. 227). Micro-level influences on sexual assault severity represent factors internal to the individual. This level includes personal characteristics unique to individuals living in a family context. For instance, personal beliefs or attitudes regarding the treatment of women will impact interactions and these interactions will subsequently impact other systems. Previous exposure to harm may also influence the system. Gamper (2004) explains that overt behavior results from individual attitudes or

beliefs held about one's self and others in one's immediate environment. Specifically, "it is generally accepted that an individual's self-perceptions often provides the catalyst from which overt behaviors ensues" (p. 133).

White and Klein (2002) define the next level or the mesosystem as an interconnection of two or more microsystems (p. 209). In other words, the mesosystem "reflects interconnections and linkages between individuals and between individuals and systems" (Campbell et al., 2009, p. 227). This system represents family factors that refer to "processes in the family such as parenting skills, family environment, family stressors and family interactions" (Little & Kaufman Kantor, 2002, p. 134). According to Bronfenbrenner (1986) the family provides the primary building blocks for development but is among several other key settings in which developmental processes take place. Additionally, the processes functioning in various settings are not independent and can all function together. One of the principle tenets to ecological theory is that factors outside the microsystem (i.e., the individual) have the potential to influence family functioning and relationships (Lynch & Cicchetti, 2002). Not only are parents, schools, and the neighborhood influencing a child's behavior but the child also impacts the surrounding environment and helps to shape these systems as well (Ingoldsby, Smith, & Miller, 2004; White & Klein, 2002). The exosystem provides community cohesiveness or a framework designed to foster informal and formal social support for families to instill social controls that regulate behaviors (Teaster et al., 2006). This includes "organizations and social systems (e.g., legal, medical, and mental health)" and also neighborhood characteristics such as poverty, or various other environmental factors that may cultivate violence in a community (Campbell et al., 2009, p. 227).

Additionally, the macrosystem refers to a broader social context pervasive throughout a culture. The social context is woven together as a result of norms, ideas, policies, and laws in society (Teaster et al., 2006). Regarding sexual victimization, the broader context may include societal acceptance of “rape myths” or pervasive messages that ultimately degrade women (Frye, 2007). Specifically, it has been postulated that a societal belief in rape myths perpetuate sexual victimization against women (Bohner, Jarvis, Eyssel, & Siebler, 2005). A common myth that only certain women are raped is unfounded and suggests that a particular kind of woman is safe and excluded from sexual victimization (Boeschen, Sales, & Koss, 1998).

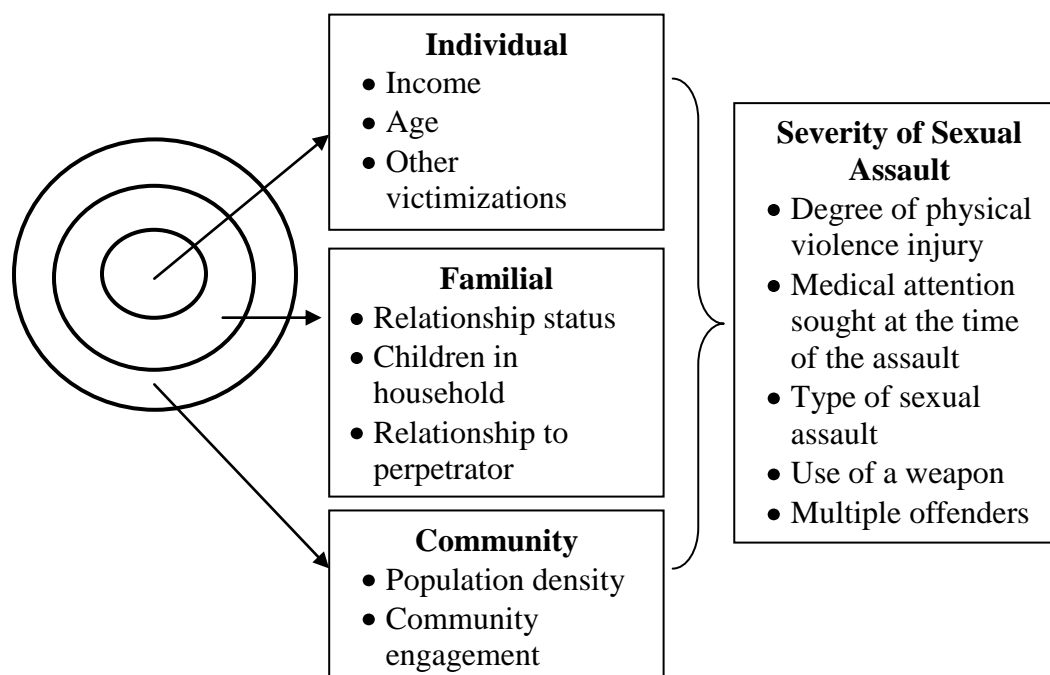
Addressing Sexual Assault Severity Using an Ecological Model

Although there have been great strides in the movement toward assisting victims of sexual assault, research examining the dynamics surrounding the actual assault; specifically, severity of the assault is still needed (Neville & Heppner, 1999; Wyatt et al., 1990). Examining sexual assault severity using an ecological model allows for all system influences to come together to create an in-depth contextual understanding of sexual victimization. Many studies examining sexual assault have focused on uni-dimensional explanations without taking into account the integrative, complex relationship that exists among individual, familial, or socio-cultural factors that may contribute to sexual assault severity (Grauerholz, 2000; Lauritsen, 2001).

Additionally, a plethora of studies have examined factors leading to sexual victimization; however, no known study has examined possible ecological predictors leading to assault severity or how these factors may vary based on race/ethnicity. As a result, a model based in Bronfenbrenner’s ecological theory is presented and assumes that

the severity of sexual assault can only be understood by examining individual, family, and community influences (Hernandez Jozefowicz-Simbeni, 2008; Prelow et al., 2007). The model presented below in Figure 2 was assembled based on prior empirical research using variables shown to be significant in sexual victimization literature (see Campbell et al., 2009; Koss & Dinero, 1989; Lauritsen & Schraum, 2004). Each variable is discussed in the following sections.

Figure 2: Ecological Model Predicting Severity of Sexual Assault



Consistent with prevention research, a possible model can be described as a compilation of factors that “increase the likelihood of a negative outcome...” (Macy, Nurius, & Norris, 2006, p. 480). Studies grounded in an ecological framework have been employed to examine child socio-emotional development outcomes (Koblinsky, Kuvalanka, & Randolph, 2006), child maltreatment (Belsky, 1980) early adolescence school dropout (Hernandez Jozefowicz-Simbeni, 2008), adolescent sexual activity (Small

& Luster, 1994), sexual re-victimization (Grauerholz, 2000), violent victimization (Lauritsen, 2001), violence against women (Lauritsen & Schraum, 2004), interpersonal violence (Thompson et al., 2001, 2003) and psychological functioning following a rape (Neville & Heppner, 1999). Each study explored factors within multiple systems to examine how factors influenced individual outcomes.

An ecological model allows researchers to examine how the lack of factors within these integrated systems may influence the overall well-being of the individual (Small & Luster, 1994). Although every woman could potentially be a target of sexual assault, there are environmental or individual factors that may increase the likelihood of sexual assault (Grauerholtz, 2000). Fundamental to an ecological model is the concept of cumulative risk (Prellow et al., 2007; Small & Luster, 1994). In other words, factors tend to have an additive effect, that is, the more factors present, the higher the degree of severity of sexual assault (Prellow et al., 2007; Small & Luster, 1994). Moreover, this model examines the multidimensionality of factors that may lead to more severe forms of sexual assault. The model allows for a more comprehensive understanding of sexual victimization in an attempt to unify how individual, familial, and community context may influence sexual assault severity involving women of various race and ethnic groups. Having a better understanding surrounding severity of sexual assault for these women may assist in determining appropriate interventions to help survivor recovery and may also have important implications for program and policy development (Macy et al., 2006).

Microsystem (Individual) Factors. Lauritsen (2001) asserts that past empirical evidence examining individual level variables associated with risk of violence include

race, age, gender, and marital status. Microsystem variables include the direct and concrete interactions with significant others creating a context in which victimization occurs (Grauerholz, 2000; Little & Kaufman Kantor, 2002; White & Klein, 2002). Regarding individual factors, Grauerholz (2000) postulates that certain micro level “factors may lead to increased contact with potential perpetrators, contributing to an exposure ... another involves an increased likelihood that potential perpetrators with whom victims come into contact with act aggressively” (p. 10). As a result, certain individual qualities may make a victim more vulnerable thus increasing a potential risk. Some researchers suggest that sexual assault perpetrators have the ability to assess and “select women for apparent vulnerabilities and then proceed to the ‘testing stage’ in which they determine if the potential victims can be intimidated” (Myers, Templer, & Brown, 1984, p. 73). These authors also “contend that vulnerability to rape does not imply responsibility for being raped (Myers, Templer, & Brown, 1985, p. 431). Several individual factors will be discussed in the following sections; specifically, how these factors may contribute to severity of sexual assault.

Income. There has been considerable debate among scholars regarding the impact of socio-economic level on risk of victimization (Cardarelli, 1997; Neville & Heppner, 1999). Using the 2000 National Crime Victimization Survey, Mosher and colleagues (2002) examined data that included 86,800 racially diverse households and concluded that violent victimization (i.e., assault, robbery, rape and/or sexual assault, and personal theft) varied based on household income with violent victimization experiences being higher among the lowest income groups. Additionally, social class is also strongly related to the availability of culturally competent services for individuals seeking

assistance for post-rape reactions (Low & Organista, 2000, p. 133). As a result, when examining post-rape mental health outcomes, among a sample of 92 sexual assault victims, researchers found that those living in lower socio-economic environments were less likely to report being recovered from the assault, months, and in some cases years after the assault (Burgess & Holmstrom, 1978).

However, similar to race, low socio-economic level as an ecological risk factor may be due to underlying phenomenon. For example, at first glance, there would appear to be a linkage between lower socio-economic levels and crime; however, less is known about the underlying mechanisms or processes involved (Fergusson, Swain-Campbell, & Horwood, 2004; Jarjoura, Triplett, & Brinker, 2002). Individuals living in disadvantaged neighborhoods often manage in isolation with fewer safe avenues available. As a result of economic instability and hardship, individuals and families are often forced to live in communities set in urban areas with high levels of violence, increased access and availability of drugs, environmental pollutants, poor quality housing, and other health damaging environmental factors (Adler, 2006; LaVeist 2005). Poverty may make it nearly impossible for some women to avoid high risk situations or environments such as dangerous neighborhoods or jobs (Low & Organista, 2000). Karmen (1982) suggests that because of these factors that place these women at risk, very poor women are more likely to be raped. As a result, examining socio-economic level within an ecological model may further shed light on how socio-economic level may function in terms of severity of sexual assault.

Age. Although women at any age can be victims of sexual assault, research reported by Mosher and colleagues (2002) based on the National Victimization Survey

suggests that women aged 16-19 are more susceptible to rape and sexual assault. These authors also assert that rates of violent victimization such as sexual assault “decreases quite dramatically for successive age groups over 25 years old” (p. 147). However, little is known regarding age and sexual assault experiences because most researchers investigating sexual assault examine college aged women perhaps as a result of convenience or overall prevalence rates for this sample of women (Wyatt et al., 1990). When examining the rape literature, age of the victim is often used in conjunction with other ecological variables (Campbell et al., 2009).

However, when examining age exclusively, research in age differences among survivors has “yielded inconsistent results” (Long, Ullman, Starzynski, Long, & Mason, 2007, p. 121). For example, research conducted by Acierno and colleagues (2001) examined 4,009 sexual assault experiences among younger women (age 18-34) and older women (age 55-89). Researchers reported that both younger and older women had similar assault experiences. Specifically, both groups of women reported the following similarities: 1) being assaulted at similar ages and by acquaintances; 2) the events were one in a series; 3) victims or perpetrators were under the influence of drugs; 4) victims experienced injury; and 5) reported their victimization to authorities. Where these groups differed was in reporting prevalence, younger women reported more sexual assault incidents than older women. The authors suggest that the actual number of sexual assaults might not be different but perhaps younger women were more comfortable disclosing and were more likely to perceive the incident as a sexual assault compared to older women. However, Muram, Miller, and Cutler (1992) found that older women were

more likely to be sexually assaulted in their homes, by strangers, and to sustain genital injuries.

Other Victimization Experiences. Patterns of victimization have long been recognized as a critical component in defining and contextualizing victim experiences. Research investigating the likelihood of other victimization experiences increasing the probability of subsequent victimization has been split between two theoretical thoughts of understanding. According to Tseloni and Pease (2004), the first line of thought is referred to as *event dependence* which “implies that the initial victimization increases the probability of a subsequent event. The successful completion of the first crime may render the target more vulnerable or attractive” (p. 932). The second line of thought is *heterogeneity*, this implies that individuals and households are simply under constant threat of being victimized regardless of victimization experiences or history. Specifically, “some targets are repeatedly victimized because they have always been more attractive to offenders compared to other potential targets” (p. 932).

However, the question remains, regardless of why some women are victimized while others are not, does another victimization experience increase severity of a sexual assault? Perhaps the role of fear may help to explain how other victimization experiences may increase severity of a sexual assault. Researchers Sheridan and Lyndon (2012) postulate that women tend to be more fearful of crime in general but experience a heightened level of fear in regard to sexual assault and stalking in comparison to men. Following a crime, victims often feel a loss of control in combating future crime. These researchers contend that “because women have a higher fear of crime than do men, they should be even more affected by that fear, potentially leading to worse consequences.

Fear may cause more symptomatology because it makes people more aware of their personal victimization risk..." (p. 342). Specifically, in the literature investigating intimate partner violence, victims have reported engaging in behaviors to entice a physical altercation to release pressure often felt prior to the altercation. Severity of a sexual assault might be contingent on the victim's level of fear regarding future victimization experiences. The level of fear heightens a victim's awareness. For example, research conducted by Dutton (2004) found that survivors of intimate partner violence were not only able to predict future violence but actual severity levels of violence experienced.

Race. "Race/ethnicity has historically played a role in the perception of rape, the response of the criminal justice system..., and the treatment, experiences, and reactions of rape victims" (Maier, 2008, p. 325). Race intersects at all levels of an individual and is among "interlocking social structures that perpetrate inequality" (Sokoloff & Dupont, 2005, p. 59). By not acknowledging how race is interwoven at all levels of the individual, is to "ignore cultural diversity and the differential life experiences of people of color in our society" (Maier, 2008; Sokoloff & Dupont, 2005, p. 59).

Despite the fact that the overall prevalence of violence against women is immense, there is evidence to suggest that sexual victimization among ethnic minority groups is disproportionately higher (Tjaden & Thoennes, 2000). Even more discouraging, Neville and colleagues (2004) postulate that researchers investigating rape-related issues often "overlook the role of race..." and therefore, know little regarding the sexual assault experiences of minority women (p. 84). Moreover, researchers Low and Organista (2000) contend that only in the last decade have researchers examined the

sexual victimization experiences of women of color. To this end, most rape-related research, interventions, and theories have been “shaped in response to the experiences and needs of White, middle-class women” (p. 132). Very little is known about how severity of sexual assault may differ based on race/ethnicity.

Ethnically diverse women living in poverty have traditionally been reported as having a greater risk of violent victimization (Cardarelli, 1997; Low & Organista, 2000). When examining general violence against women, there has been a decrease in violence regardless of racial or ethnic origin; however, risk of violence remains elevated among Black women in comparison to White women and higher for Hispanic women when compared to non-Hispanic women (Rennison, 2000 as cited in Dugan & Apel, 2003). Results from a comprehensive examination of violent victimization against women conducted by Dugan and Apel (2003) revealed that:

Asian and Black women are more likely robbed compared with women of other races... Native American women appear most likely to be victimized by someone they know, and that person is often using drugs or alcohol. Black females are most likely to be seriously injured and to have a weapon such as a gun, knife, or blunt object used against them. And, finally White women are most likely to only receive threats. (p. 973)

Additionally, according to the National Violence Against Women Survey (2000), when examining rates of sexual assault and intimate partner violence, Native American women reported higher rates of victimization when compared to women of other racial/ethnic backgrounds (Tjaden & Thoennes, 2000). Mosher and colleagues (2002) concluded that individuals of Hispanic origin have a greater risk of being robbed and being victims of personal theft and non-Hispanics have greater likelihood of being raped or assaulted. Researchers examining race and ethnic variations in victimization trends strongly caution against looking at race alone and suggest this may be more a reflection of “lifestyle,

friendship choices, routine activities,...or community characteristics” (Lauritsen & White, 2001, p. 38 & 39). Cardarelli (1997) suggests that risk of violent victimization appears more to be a function of poverty and isolation rather than race exclusively.

The need for an ecological model of victimization among minority women is critical in understanding assault severity for minority women. There is some research to suggest that rape among Latinas is low in comparison to non-Hispanic Whites. It is unclear as to why lower rates of sexual assault among Latinas exists but may be a result of multiple systems at play such as protective cultural factors, reluctance to involve the criminal justice system, or a “different understanding what constitutes sexual assault...” (Low & Organista, 2000, p. 133). Researchers examining race and sexual assault suggests that among Black women, there is an underlying cultural expectation or what has been called “a culture of silence” and often do not recognize victimization experiences (Maier, 2008, p. 307). A reluctance to report sexual assault may be a result of fear that a minority perpetrator may be mistreated by the criminal justice system, the victim may appear “disloyal to the race,” or an overall mistrust of White-dominated intervention programs (Maier, 2008, p. 304).

Mesosystem (Familial) Factors. Meso factors that may place victims at increased risk include level of social support or networks such as family, friends, or children (Neville & Heppner, 1999). Grauerholz (2000) hypothesized that family interactions do not by themselves “result in victimization but may shape the types of interactions an individual is likely to have at the micro level...withdrawal from others, a lack of social support... can seriously reduce the victim’s social resources and power,” thus leading to increased vulnerability (p. 13).

Relationship Status. There is overwhelming evidence to suggest that most sexual victimization experiences are perpetrated by someone known to the victim as opposed to the stereotypical rape scenario or definition (i.e., deranged stranger, sudden violent attack at night, wielding a weapon, and penile/vaginal penetration) (Andrias, 1992; Koss, 1985; LaFree, 1989; Temple, Weston, Rodriguez, & Marshall, 2007). Additionally, there is also research indicating that family members are more likely to inflict more injury compared to a boyfriend or acquaintance (Stermac, Del Bove, Addison, 2001). For example, Stermac and colleagues (2001) examined coercion, violence, and physical injury among victims of sexual assault committed by spouses ($n = 97$); and compared these to sexual assaults committed by boyfriends ($n = 256$) and acquaintances ($n = 194$). These researchers found that victims are likely to suffer more physical injury when assaulted by a spouse or boyfriend. However, boyfriends were more likely to “use a weapon, verbal threats, and physical restraint during the assault” (Stermac et al., 2001, p. 1230). Spouses and boyfriends were similar in their use of physical violence while acquaintances were “likely to use drugs to aid [in] a sexual assault and to be drinking alcohol at the time of the assault” (Stermac et al., 2001, p. 1230, brackets added). Additionally, most sexual victimization research examining familial connections or other intimate relationship dynamics typically focuses on child sexual abuse or intimate partner violence (Temple et al., 2007; Campbell et al., 2009). This is unfortunate given the probability that risk factors and subsequent severity of the assault for adult women reporting sexual victimization experiences may vary (Testa, VanZile-Tamsen, & Livingston, 2007).

Research conducted by Lauritsen and Schraum (2004) asserts that greater attention should be paid to the role of the family in victimization studies. Specifically,

marital status is often a key focal point of interest in research involving intimate partner violence. Women are often at greater risk of intimate partner violence when they are newly separated or divorced. However, these authors claim that in general, violent victimization studies place much emphasis on race and socioeconomic status, with a paucity of attention being paid to marital or family status. “Nonetheless, the amount of violent victimization among those never married, divorced, and separated is three to four times greater than among those married, and seven to eight times greater than among those widowed” (Lauritsen & Schraum, 2004, p. 326).

Children in Household. The presence of children may also have an impact on severity of sexual assault. When examining the physical intimate partner violence literature, researchers have found that the prevalence of spousal abuse was higher among couples with children in comparison to those couples without children (Cardarelli, 1997; Fantuzzo, Fusco, Mohr, & Perry, 2007). Specifically, researchers Fantuzzo, Fusco, Mohr, and Perry (2007) examined 5,295 police files of substantiated domestic violence incidences and found, when compared to the general population, families reporting an incident of domestic violence had a significantly higher portion of households with children. Additionally, some researchers have speculated that spousal physical aggression may be more severe when children are present to witness the abuse (Thompson et al., 2001). For example, using data from the Canadian Violence Against Women Survey, Thompson and colleagues (2001) examined risk factors for physical injuries from partner violence. In a sample of 1,946 women who reported physical or sexual assaults by a current, former, or common-law husband, researchers concluded that

having children who witnessed the incident was related to an increase of both minor and severe injuries for women.

Relationship to Perpetrator. Research examining victim-perpetrator relationship suggests that a comprehensive understanding of this dynamic is critical in understanding sexual assault experiences (Stermac et al., 2006). Apel, Dugan, and Powers (2011) describe the victim-perpetrator relationship on a continuum of relational distance ranging from intimate partner to stranger. A close relational distance between a victim and perpetrator may increase the likelihood of frequent or intimate contact allowing for more “accessibility to each other’s personal places” and the possibility of an assault (p. 4). The implication is that “strangers are expected to rely least on the use of injury to resolve disputes, whereas closer relational distance will motivate assailants to injure their victims, and to do so more severely” (p. 4). Similar to most injury studies examining victim-perpetrator relatedness, Apel and colleagues (2011) found that married and unmarried intimates were at greater risk of injury while victims attacked by strangers were least likely to suffer an injury. However, some research has found contradicting results. Specifically, research conducted by Woods and Porter (2008) examined hospital data on three levels of victim-perpetrator relatedness. Victim relatedness included strangers ($n = 342$), acquaintances/dating partners ($n = 326$), and current or previous spouses or boyfriends ($n = 336$). These researchers concluded that:

stranger offenses were significantly more likely to be associated with dominant and hostile offense styles such as approaching the victim with a blitz attack, or the offender beating or using a weapon to threaten or control the victim. In comparison, known offenders were found to be associated significantly with less violent and more personal offense styles, reflecting pseudo-submission and compliance-gaining, such as approaching the victim with a trust approach, making the victim participate in the attack and showing romantic gestures to the victim. (p. 69)

Perhaps severity of the assault goes beyond the physical aspects of the attack and is also associated with how the victim is approached from an emotional level. Using a trust approach to lure a victim may leave the victim feeling more vulnerable or hurt by their victimization experience thus increasing the emotional severity but not necessarily increased physical injury.

Exosystem (Community) Factors. Exosystem level influences on sexual assault severity denote features outside the individual that include such factors as societal or cultural influences on sexual victimization (Bubolz & Sontag, 1993). Additionally, research conducted by Sampson and Lauritsen (1994) suggest that community level variables are often examined in an attempt to “isolate characteristics of communities, cities, or societies that lead to high rates of criminality” (p. 2). Researchers have added a community component as a potential factor that may provide additional risk or protection against all forms of violent crime. When examining community level risk or protective factors, Sampson, Raudenbush, and Earls (1997) have been credited for coining the phrase “collective efficacy” to refer to the extent in which a community provides social cohesion through shared values in a neighborhood which may foster a protective mechanism against victimization. There are growing numbers of low-income families living in neighborhoods typically characterized by high levels of violent crime and drug activity (Randolph, Koblinsky, & Roberts, 1996). Although a linkage exists between neighborhoods characterized by structural disadvantage and violence, less is known about the underlying mechanisms or processes involved (Chung & Steinberg, 2006; Fergusson, Swain-Campbell, Horwood, 2004; Jarjoura et al., 2002).

Population Density. Criminologists have long recognized the importance of community characteristics in order to examine and further understand criminal behavior. However, Lauritsen (2001) contends that the idea of community is not without debate and using variables to create community context should be guided by a theoretical definition of community. Gruenewald and colleagues (2006) suggest that community level theoretical explanations fall largely into two community features, “characteristics of the populations living in those neighborhoods or characteristics of the places in which they live” (p. 666). These researchers posit that crime theorists often combine these two features in understanding variations in criminal activity among different communities and assert that both features are needed in developing “adequate ecological models of crime” (Gruenewald, Freisthler, Remer, LaScala & Treno, 2006, p. 667). However, when describing communities in terms of geographic region or community type such as urban or rural, Sampson and Lauritsen (1994) conclude that few studies have examined variations in violent crime among rural areas and suburbs with more emphasis focusing on large urban areas.

When examining population density differences in violent crime, Gruenewald and colleagues (2006) concluded that general assault rates were “increased in densely populated, poor minority urban areas with greater residential instability. Assault rates were also greater in zip code areas adjacent to densely populated urban areas” (p. 666). In reference to sexual assaults, George, Winfield, and Blazer (1992) also found urban/rural differences in a representative sample of southern female sexual assault victims. They concluded that:

The urban/rural difference in the prevalence of sexual assault observed in the North Carolina sample (8.4% vs. 2.9%) is compatible with explanations based on

socio-cultural factors. Rural areas tend to be higher in social integration than urban areas, reflecting less immigration, greater informal social control, and lower crime rates overall (e.g., Marsden, Reed, Kennedy, & Stinson, 1982). Note also that the prevalence of sexual assault was nearly twice as high among Los Angeles women as among urban North Carolina women (16.7% vs. 8.4%). (p. 121)

However, these authors caution researchers from drawing conclusions as population differences may simply be a matter of density and the sheer number of people that tend to live in urban areas when compared to rural or suburban areas. As a result, one would be more at risk of being in closer proximity to potential predators (George et al., 1992). A critical examination of possible population density is needed to assess how community characteristics may play a role in risk of assault.

Community Engagement Activities. Criminal activity assumes a social mechanism in that crime often occurs between individuals. There is a complex blend of interactions between situational and behavioral mechanisms that may set the scene for criminal activity (Sherley, 2005). Criminologists have long hypothesized that individual choice in routine activities or situations may place individuals at heightened risk when activities are “characterized by close physical proximity to potential motivated offenders could be at an increased risk...” (Fisher, Daigle, & Cullen, 2010, p. 105). While a complete description of routine activities theory is beyond the scope of this research, the underlying mechanisms found in activities and interactions with potential perpetrators should be mentioned. “Routine activities theory proposes that vulnerability to crime is contingent on the exposure that comes from adhering to certain lifestyles, a key underlying assumption being that behavior is both repetitive and predictable” (Kennedy & Forde, 1990 as cited in Sherley, 2005, p. 89). Thus, the more exposure to activities that engage the community the more risk may exist. Specifically, greater risk may be

identified in repeated, daily activities in which individual patterns are defined and created such as work or school schedule, transportation options, or number of nights away from home.

Advancing the Sexual Assault Literature

This research advances the sexual victimization literature in three distinct ways. First, the guiding theoretical perspective for this model is based in Bronfenbrenner's ecological theory and assumes that individual behavior can only be understood in context in which the individual, family, and community are embedded. Additionally, the development of a severity scale was attempted to classify assault characteristics to assist in the documentation of sexual victimization experiences for criminal justice professionals. Finally, the model presented allowed for an examination of sexual assault in an attempt to address how contextual factors may influence sexual assault severity involving women of various race and ethnic groups. There are no known studies to investigate if ecological factors may impact severity of sexual assault among minority women. Having a better understanding surrounding severity of sexual assault for these diverse women may assist in determining appropriate interventions to help survivor recovery and may also have important implications for program and policy development. The research questions addressed in this exploratory research are: 1) can a valid and reliable scale of sexual assault severity be developed; 2) are there ecological factors that predict severity of sexual assault; and 3) for each race/ethnicity category, to what extent do ecological factors influence severity of sexual assault?

Chapter 3: Methods

This chapter provides a detailed overview of the National Crime Victimization Survey and specifics regarding the sample examined in this research. Secondary data were used for this research. Each variable of interest was operationalized and the explanation of the development of the sexual assault severity scale for this study is described. To examine each research question, analyses are explained.

Description of the Data

According to Lauritsen (2001) the National Crime Victimization Survey was created for two primary purposes, “to provide valid and reliable estimates of the volume of crime in the United States independent from the recording practices of criminal justice systems and to permit the study of victimization, its related outcomes, and the characteristics of criminal events” (p. 3). Specifically, “the National Crime Victimization Survey (NCVS), previously called the National Crime Survey (NCS), has been collecting data on personal and household victimization through an ongoing survey of a nationally-representative sample of residential addresses since 1972” (Inter-University Consortium for Political and Social Research [ICPSR], 2008, p. 5). Although the survey underwent a redesign in 1992, “the basic design...has remained constant through its almost four decades of existence” (Rand, 2009, p. 3). The NCVS is the largest, most comprehensive victimization data source in the United States (Dugan & Apel, 2003; Mosher et al., 2002). The survey sample consists of approximately 50,000 housing units selected using a stratified, multi-clustered survey design annually (ICPSR, 2008a). According to the U.S. Department of Justice, Bureau of Justice Statistics [hereafter referred to as BJS] (2006), “the actual annual number of housing units and individuals interviewed for the sample

varies slightly from year to year” (p. 131). The exact numbers of households and individuals interviewed by year range from between 67,000 to approximately 80,000. There has been consistently 90 percent of households drawn into the sample, “resulting in one of the highest completion rates among social surveys worldwide...and NCVS data also have undergone years of evaluation for reliability and validity...”(Lauritsen, 2001, p. 8).

The survey was developed in the early 1970s in reaction to an escalating crime rate across the country; the NCVS has been a cornerstone in crime victimization research and a valuable source in constructing national indicators of crime (Mosher et al., 2002; Rand, 2009). Administered by the U.S. Census Bureau for the BJS, the survey provides detailed information investigating crime incidents and victimization trends from the victims’ perspective (BJS, 1994; Rand, 2009). Specifically, when designing the survey, BJS identified four primary objectives: “(1) to develop detailed information about the victims and consequences of crime; (2) to estimate the numbers and types of crimes not reported to the police; (3) to provide uniform measures of selected types of crimes, and; (4) to permit comparisons over time and types of areas” (ICPSR, 2008a, para. 2). The survey categorizes crimes as personal and property and includes detailed information on:

crime type (i.e., rape, robbery, assault, burglary, larceny, and motor vehicle theft), severity of the crime; injuries or losses; time and place of occurrence; medical expenses incurred; number, age, race, and sex of offender(s); and relationship of offender(s) to the victim (stranger, casual acquaintance, relative, etc.). Demographic information on household members includes age, sex, race, education, employment, median family income, marital status, and military history. (ICPSR, 2008b, para. 3)

In 1992, recognizing the difficulties victims may encounter in reporting their sexual assault experiences, the NCVS instruments and procedures for administering the

survey underwent changes (Rand, 2009). Dugan and Apel (2003) contend that redesign efforts were critical in the exploration of violence against women. After a decade long survey review and in-depth consultation with advocacy groups and criminal justice professionals, changes “broadened the scope of covered sexual incidents beyond the categories of rape and attempted rape” (BJS, 1994, p. 1). In some cases, “response categories were changed, question wording was altered, and questions were added or deleted” (BJS, 2000, p. 9). Specifically, NCVS officials added “more direct questions on rape, sexual assault, and other sexual assault crime...more extensive questions on sexual victimization have elicited information on about 3 to 4 times as many sexual crimes as in the past” (BJS, 1994, p. 1).

Additionally, many victims of acquaintance or date rape do not conceptualize or acknowledge the assault as “rape” and therefore do not report the crime to the police (Layman, Gidycz, & Lynn, 1996; McGregor, 2005). Koss (1985) defined an *unacknowledged rape* victim as “a woman who experienced sexual assault that would legally qualify as rape but who does not conceptualize herself as a rape victim” (p. 195). Unacknowledged rape victims often do not label the sexual assault as “rape” but use much more benign labels (e.g., just a miscommunication) to describe the experience (Littleton et al., 2006). To help remedy this phenomenon and to gather the most accurate number of victimization experiences, NCVS officials also added probing comments and questions “encouraging respondents to report victimizations that they themselves may not define as crimes” (BJS, 1994, p. 1). For example, questions regarding sexual victimization are preceded with statements such as “people often do not think of incidents committed by someone they know. Were you attacked or threatened by someone you

know... or “incidents involving forced or unwanted sex are often difficult to talk about...” (BJS, NCVS Basic Screen Questionnaire, 2012, p. 5)

Procedure

There are three modes of data collection: telephone interviews, computer-assisted-telephone interviewing (CATI), and face-to-face interviews (ICPSR, 2008). In 2006, the survey was “converted to a fully automated data collection,” replacing pencil-and-paper interviewing with CATI (ICPSR, 2008, p. 7). Once a household is selected into the sample,

self-report interviews are conducted at six month intervals with all residents in sample households age 12 or older for a total of seven interviews over a 3 year period. If the residents of the sample address move out, interviews are conducted with whoever moves into the sample address. (Rand, 2009, p. 3)

All interviews are conducted by phone with the exception of the first interview (BJS, 2013). Interviews last, on average, approximately 25 minutes in duration. However, total time commitment may vary depending on the number of eligible household members to be interviewed and household member crime experiences during the reporting period (U.S. Census Bureau’s NCVS Interviewing Manual for Field Representative, 2012).

Respondents are asked screening questions that cover a full range of crimes, excluding homicide. More specifically, according to Rand (2009) the interview is conducted using two measurement devices:

a crime screening questionnaire and an incident report. The screening questionnaire contains a number of questions designed to ascertain whether the respondent was a victim of a measured offense during the previous six months. One household member is asked questions about crimes against the household such as burglary and motor vehicle theft. For every incident uncovered by the screening questionnaire, an incident report form is filed. The incident form

gathers information on a broad range of subjects such as the circumstances of the incident, the victim, the offender, and consequences of the victimization. (p. 3)

Each year, the NCVS data collected are divided into four separate databases or record-types. The four record-type files are address, household, person, and incident.

Specifically,

the address and household record-type files contain information about the household and characteristics of the surrounding area as computed by the Bureau of the Census. The person record-type file contains information about each household member age 12 years and older as reported by that person or proxy... The incident record-type file contains information drawn from the incident report completed for each household incident or person incident mentioned during the interview. (ICPSR, 2008b, para. 7)

To address individual, family, and community/cultural variables, consistent with an ecological framework, the data used for this study included household, person, and incident record-type files from 1992-2005. All incident-level data were aggregated to the person-level, as the unit of analysis is the victim of sexual assault.

Sample Design

The NCVS employs a stratified multistage cluster sample technique and uses a rotating panel design in which housing units are randomly selected to participate (BJS, 2013; Mosher et al., 2002). As data collection is so elaborate, this leads to “a sample sufficiently large enough to be partitioned into more racially and ethnically homogenous subgroups suitable for modeling violent victimization” (Dugan & Apel, 2003, p. 964). However, because the sample technique was different for this study, specifically, only sexual assault victims, the reader should be cautious when interpreting the race/ethnicity findings from the current study.

Sample. The sample for this study included only victims of sexual victimization, including threats of sexual violence, attempted rape, sexual assault, and rape. The sample

consisted of all Asian, Hispanic, Native American/Alaska native, non-Hispanic Black, and non-Hispanic White women, 12 years of age or older reporting at least one sexual assault incident between 1992-2005. The sample consisted of thirteen consecutive years of data collected through the NCVS. Respondents could report more than one incident during an interview. As a result, frequencies were calculated to identify any individual with more than one incident of victimization, so not to “violate independence across observations,” the most severe forms of sexual assault was used (Dugan & Apel, 2003, p. 966). There was also a possibility that more than one victim would reside in a household. Specifically, “because the sampling strategy of the NCVS is to interview all persons in selected housing units, females living together could be victimized by the same offender. For example, the husband of a victim of spousal violence may also abuse his daughter” (Dugan & Apel, 2003, p. 966). Frequencies were calculated to determine if any one household had more than one victim over the age of 12. Please refer to Chapter 4 for a complete description of the sample.

Measures

The following section describes the measures used in this research. Data manipulation procedures for coding and scoring are described. The outcome measures used for the severity scale are presented first followed by the predictor variables. A table including all variable definitions can be found at the end of the chapter.

Dependent Variable: Sexual Assault Severity Scale. The severity scale was based on responses of female victims of sexual assault to five questions on the NCVS. These particular questions were selected as they were identified in prior research as being associated to severity of sexual victimization (Koss & Dinero, 1989; Lauritsen &

Schraum, 2004). The five victimization questions included in the scale were: Item #1: *did the victim sustain an injury as a result of her victimization experience?* Injuries sustained were measured using self-identified injury questions. General injuries occurring at the time of sexual assault were coded (0 = *no*, 1 = *yes*); along with injuries occurring during a rape, attempted rape or a sexual assault were coded (0 = *no*, 1 = *yes*). However, for this research, degree of physical violence or injury was re-coded as 1 = *attempted rape injury*, 2 = *sexual assault injury*, and 3 = *rape injury*.

Item #2: *was medical attention sought as a result of the assault?* If a victim did suffer an injury, she was asked a follow-up question to assess if medical assistance was sought, including self-treatment. Specifically, was the victim injured to the extent that she received medical care (1 = *yes*, 2 = *no*). Medical attention was re-coded as 0 = *did not seek medical attention* and 1 = *sought medical attention*.

Item #3: combined two questions on the NCVS for an overall victimization score: *was there a completed or attempted rape or sexual assault?* and *was there a verbal threat of violence?* As severity of sexual assault has been linked to whether the incident was a completed rape or an attempted rape, victims were asked if they were attacked and raped (forced or coerced sexual intercourse), responses were coded (0 = *no*, 1 = *yes*); attempted rape (attempt of forced or coerced sexual intercourse), responses were coded (0 = *no*, 1 = *yes*); or sexual assault (sexual assault other than rape or attempted rape), responses were coded (0 = *no*, 1 = *yes*).

Respondents were also asked if they were threatened during their victimization experience. Questions included different forms of threats. For example, verbal threat of rape, threat to kill, threat other than to kill or rape, threat of sexual assault other than rape,

threat of sexual contact with force (i.e., grabbing or fondling), threat of sexual contact without force (i.e., grabbing or fondling). Each response was coded (0 = *no*, 1 = *yes*), if a respondent had at least one type of threat, a respondent was given a score of 1. However, for the purposes of scale development, threat and physical sexual victimization were combined. As a result, the item was coded as *threat only* = 1, *attempted rape or sexual assault* = 2, *sexual assault* = 3, and *rape* = 4.

Item 4: *was there a use of a weapon?* Information regarding the use of a weapon by an assailant during the attack was also obtained. Victims were asked if the offender had a weapon such as a knife, gun, or something to use as a weapon such as a bottle or wrench. This question was coded as (1 = *yes*, 2 = *no*, 3 = *don't know*); however, for the purpose of this research, use of a weapon was measured by 0 = *offender did not use a weapon and don't know*, or 1 = *used a weapon*.

Item 5: *were there multiple offenders?* Information regarding the offender was also collected from victims to assess if the crime was committed by only one or by more than one offender. Victims responses were coded as (1 = *only one*, 2 = *more than one*; 3 = *don't know*); however, similar to the previous question, for the purposes of this research, responses were re-coded, multiple offenders were measured by 0 = *single offender and don't know*, or 1 = *multiple offenders*.

In the first step of these analyses, responses to these five items were summed to create the severity score with values ranging from 0 to 10. Other researchers have used a summed score technique across severity questions as an appropriate indicator of severity (see Frazier, 1991; Neville et al., 2004). Some item responses were reverse coded, so that higher scores indicated a greater level of severity among victims.

Independent Variables: Ecological Factors

Individual level Variables. The NCVS measured income as an ordinal variable scaled from 1-14. Income was coded (1 = *Less than \$5,000*, 2 = *\$5,000 to \$7,499*, 3 = *\$7,500 to \$9,999*, 4 = *\$10,000 to \$12,499*, 5 = *\$12,500 to \$14,999*, 6 = *\$15,000 to \$17,499*, 7 = *\$17,500 to \$19,999*, 8 = *\$20,000 to \$24,999*, 9 = *\$25,000 to \$29,999*, 10 = *\$30,000 to \$34,999*, 11 = *\$35,000 to \$39,999*, 12 = *\$40,000 to \$49,999*, 13 = *\$50,000 to \$74,999*, and 14 = *\$75,000 and over*). However, for this research, SES was re-coded ranging from 1 to 3, (1 = *Less than \$14,999*, 2 = *\$15,000 to \$29,999*, 3 = *\$30,000 and over*). However, because there was missing data, income was then dummy-coded and treated as a dichotomous variable. Specifically, income was coded as 0 = *higher income and missing*, 1 = *14,999 and less*. Another dummy code was created for income 1 = *missing income*, 2 = *reported income*. These variables were then included in the model to reduce potential biases resulting from this coding scheme. This technique had been used in previous research (see Dugan, 2003, Dugan & Apel, 2003).

Moreover, age was a continuous variable measured by the NCVS and was treated as a continuous variable for this research. Other victimization experiences were measured as a dichotomous variable; specifically, 0 = *no other violent crime reported* and 1 = *other violent crime reported*. Regarding race/ethnicity, the NCVS measured race as a nominal level of measurement with categories: 1 = *non-Hispanic White*, 2 = *non-Hispanic Black*, 3 = *Hispanic*, 4 = *American Indian/Alaska native*, 5 = *Asian*, and 6 = *Native Hawaiian/Other Pacific Islander*. However, because some race categories did not have high enough numbers suitable for these analyses, the NCVS categories were collapsed and re-coded as 1 = *non-Hispanic White*, 2 = *non-Hispanic Black*, 3 =

American Indian/Alaska native, 4 = *Asian*, and *Native Hawaiian/Other Pacific Islander*, and 5 = *Hispanic*. Race/ethnicity was then separated and for each category a dummy code was created.

Familial level variables. Relationship status was measured as 1 = *married*, 2 = *widowed*, 3 = *divorced*, 4 = *separated*, 5 = *never married* and treated as a nominal variable; relationship status was then dummy-coded for these regressions. In order to identify if children were present in the household, the variable family structure was collapsed and used. The NCVS coded family structure as 1 = *reference person, husband, children, relatives only*, 2 = *reference person, husband, children, nonrelatives only*, 3 = *reference person, husband, children, relatives and non-relatives*, 4 = *reference person, husband, children only*, 4 = *reference person, husband, relatives only*, 5 = *reference person, husband, nonrelatives only*, 6 = *reference person, husband, relatives and non-relatives*, 7 = *reference person, husband only*, 8 = *lone reference person, children, relatives only*, 9 = *lone reference person, children, nonrelatives only*, 10 = *lone reference person, children, relatives and nonrelatives*, 11 = *lone reference person, children only*, 12 = *lone reference person, relatives only*, 13 = *lone reference person, nonrelatives only*, 14 = *lone reference person, relatives and non-relatives*, and 15 = *lone reference person only*. These categories were then collapsed. Children in household was coded as 1 = *with children* and 0 = *without*, and was treated as a dichotomous variable.

The NCVS coded relationship to perpetrator as 1 = *spouse at time of the incident*, 2 = *ex-spouse*, 3 = *parent or step-parent*, 4 = *own child or step-child*, 5 = *brother/sister*, 6 = *other relative*, 7 = *boy/girlfriend*, 8 = *friend or ex-friend*, 9 = *roommate*, 10 = *schoolmate*, 11 = *neighbor*, 12 = *customer or client*, 13 = *other non-relative*, 14 = *patient*,

15 = *supervisor*, 16 = *employee*, 17 = *co-worker*, 18 = *teacher*, and 19 = *stranger*.

However, for this research, relationship to offender was re-coded as 1 = *spouse or ex-spouse*, 2 = *other relative*, 3 = *boy/girl friend*, 4 = *friend or ex-friend*, 5 = *known other*, 6 = *stranger* and then dummy codes were then created for each category.

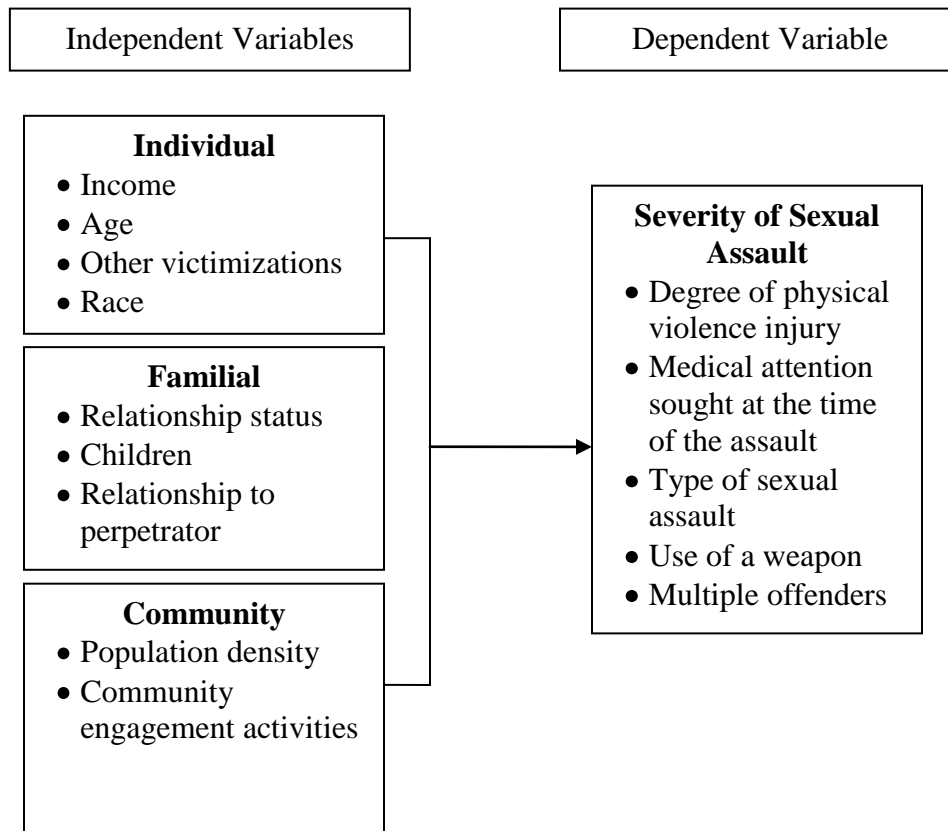
Community level variables. Population density was measured as an ordinal variable and was treated as an interval variable for the regression. The NCVS coded population density as 1 = *not a place*, 2 = *under 999*, 3 = *1,000 to 9,999*, 4 = *10,000 to 24,999*, 5 = *25,000 to 49,999*, 6 = *50,000 to 99,999*, 7 = *100,000 to 249,999*, 8 = *250,000 to 499,999*, 9 = *500,000 to 999,999*, 10 = *1,000,000 or more*. For this research, population density was re-coded as 1 = *under 10,000*, 2 = *10,000 to 49,999*, 3 = *50,000 to 99,999*, 4 = *100,000 to 249,999*, 5 = *250,000 to 499,999*, 6 = *500,000 to 999,999*, 7 = *over 1,000,000*. Finally, community activities were grouped as a set of dichotomous/continuous variables measured by: Did you have a job or worked last week (0 = *no*, 1 = *yes*); are you attending any school (0 = *no*, 1 = *yes*); how often do you go shopping during the week; how often do you spend evenings away from home in a week; how often do you ride public transportation in a week; and how long have you lived at this address (in months), and how often have you moved in the last five years?

Analytic Strategy

Data were gathered, organized, and coded using SAS. However, the more advanced analytic analyses were conducted using STATA 12 for Windows. Descriptive statistics were performed to describe the sample demographics and the research variables used in these analyses. Frequencies and percentages were calculated for nominal data (e.g., relationship status) and means and standard deviations were calculated for

continuous data (e.g., age). Outliers were examined and defined as values 3.29 standard deviations from the mean (Stevens, 2009). Figure 3 below represents the statistical model for this research.

Figure 3: Model for Statistical Analyses



To determine if a scale could be created for this research, the first step was to conduct a factor analysis. Factor analysis is often used as a technique in the development of scales. Once the scale or dependent variable was created further analyses could be conducted. However, because a scale for these analyses could not be developed, the second step was to create another dependent variable. The dependent variable that was created had more than two categories. As a result, multinomial logistic regressions were used to assess if ecological factors predicted sexual assault severity. Nine ecological

factors were broken into three categories: individual (SES, age, other victimizations, and race/ethnicity), familial (relationship status, children in household, and relationship to perpetrator), and community (population density and community activities).

Additionally, to assess differences in severity of sexual assault based on race/ethnicity, multinomial logistic regression was conducted for each race/ethnicity category. Race/ethnicity was broken into three groups: non-Hispanic Black, Hispanic, and non-Hispanic White. Given that there is a separate question for Hispanic origin, any participants who selected “yes” to this question were labeled as Hispanic, regardless of prior selection of race in the survey. Differences in assault severity based on race/ethnicity were assessed. Table 2 below describes each variable in detail.

Table 2. Variable Definitions

<i>Construct</i>	<i>Definition</i>
Dependent Variables	
<i>Types Sexual Assault</i>	
Threat only	A threatening situation was one in which there was no physical contact between the offender and victim but the victim felt that physical harm could have occurred. This included nonverbal threats, e.g., brandishing a weapon or verbal threats of physical harm which were made in person. Threats made over the telephone or threatening letters were not included.
Attempted rape	Attempted attacks generally involved (unwanted) sexual contact between victim and offender. A non-completed act of rape or sexual assault was considered an attempted rape or sexual assault.
Sexual assault	A wide range of victimizations, separate from rape or attempted rape. These crimes included attacks generally involving (unwanted) sexual contact between victim and offender. Sexual assaults may or may not involve force, such as grabbing or fondling. Sexual assault included incidents other than rape or attempted rape.

Rape	Forced sexual intercourse, included both psychological coercion as well as physical force. Forced sexual intercourse meant vaginal, anal, or oral penetration by the offender(s). This category also included incidents where the penetration was from a foreign object such as a bottle.
<i>Injury</i> Attempted rape	Bodily hurt or damage sustained by a victim as a result of criminal sexual assault. Injuries reported that were suffered as a result of an attempted rape. Physical damage experienced by the victim such as broken bones, bruises, cuts, or internal injuries. Emotional and psychological trauma were not included.
Sexual assault	Bodily hurt or damage sustained by a victim as a result of criminal sexual assault. Injuries reported that were suffered as a result of a sexual assault. Physical damage experienced by the victim such as broken bones, bruises, cuts, or internal injuries. Emotional and psychological trauma were not included.
Rape	Bodily hurt or damage sustained by a victim as a result of a criminal sexual assault. Injuries reported that were suffered as a result of a rape. Physical damage experienced by the victim such as broken bones, bruises, cuts, or internal injuries. Emotional and psychological trauma were not included.
Medical attention sought	Individuals were asked if they were injured to the extent that they received any medical care, including self treatment. Treatment for injuries included medical care at the scene or at home, neighbor or friend's home, health unit or first aid station, doctor's office, clinic, emergency room/clinic, hospital, not emergency room, medical care in another location.
Use of a weapon	Items such as guns (pistols, revolvers, rifles, and/or shotguns) and knives were always considered weapons. Other objects are not considered weapons unless used as a weapon; if the respondent felt threatened by the object, then it was considered a weapon.
Multiple offenders	The number of offenders involved in the sexual assault.

Independent Variables

Individual

Age

Age was determined by asking for month, day, and year of birth. From this birth date, the field representative determined the respondent's age as of the last day of the month previous to the interview month. The respondent was also asked to verify the calculated age.

Household income

The sum of income received by all household members (12 years of age or older) living in a sample housing unit. The income may include wages, salaries, net income from business, farm or rent, pension, dividends, interest, social security payments, alimony, public assistance, child support, and any other money received by household members age 12 or older.

Other victimization

Individuals were asked if there was another victimization experience such as burglary or larceny reported in the six month reporting period. For this particular category, "other victimization" excluded other sexual assault experiences.

Race/ethnicity

Individual self-reported race. The five categories were: White, Black, American Indian/Aleut/Eskimo, Asian/Pacific Islander, and other. Ethnicity was a self-reported statement of the national, cultural, or linguistic group with which each member of the household identified. Currently, the NCVS only gathered data on Hispanic ethnicity.

Familial

Relationship status

The NCVS defined five categories of relationship status as 1) married, included common-law marriage, 2) widowed, 3) divorced, 4) separated, those married persons who had a legal separation or who had parted because of marital discord, but had not yet obtained a divorce. Those who had parted temporarily for reasons other than marital discord (such as employment, Armed Forces, etc.) were recorded as married, 5) never married, included all children under the age of 12, and persons who had never been married or whose only marriages had been annulled.

Relationship to perpetrator	The individual was asked to specify one of 18 categories (i.e., spouse, ex-spouse, parent or step-parent, own child or step-child, brother/sister, other relative, boy/girlfriend, friend or ex-friend, roommate, schoolmate, stranger, neighbor, customer or client, other non-relative, patient, supervisor, employee, co-worker, and teacher) indicating the relationship between the victim and the offender at the time the crime occurred.
Children in household	The NCVS had multiple classification categories for family structure. Please refer to text under independent variables for description of classification categories. These categories were collapsed to determine if a child was living in the victim's household.
<i>Community</i>	
Population density	A two-digit code used to identify the population size range for the place in which the sample unit is located. Please refer to text under independent variables for description of population classification.
How often does the respondent go shopping in a week	The NCVS begins each interview with a series of questions on lifestyle and frequency of behaviors that have shown some association with crime victimization. Such behaviors included such things as shopping, spending the evening away from home, and riding public transportation.
How often does respondent spend an evening away from home in a week	
How often does respondent ride public transportation in a week	
Length of time at current address (months)	Number of months living at the current address where the interview took place.
Number of times moved in last 5 years	Individuals were asked how many times he/she moved in the last 5 years.

Have job or worked last week

Individuals were asked about employment status. Specifically, did the respondent have a job or work at a business the week prior to the interview? Work did not include volunteer work or work around the house.

Attending any school

Was the individual attending any school such as secondary, college, trade, or vocational training.

Chapter 4: Results

This chapter presents a detailed description of the data. All data presented were collected from only victims of sexual assault. The results of the analyses introduced in chapter 3 are presented by research question.

Sample Description

Frequencies and percentages for the participant race/ethnicity are presented in Table 3. One thousand three hundred and two (1,302) participants were used in these analyses. Most of the participants were non-Hispanic White ($n = 850$, 74%) followed by non-Hispanic Blacks ($n = 151$, 13%), with only two percent ($n = 22$) being Asian or Pacific Islander and one percent ($n = 14$) being American Indian. Only 9 percent or 111 participants responded that they were of Hispanic origin. Unfortunately, Hispanic origin could not be broken down any further into specific race/ethnic categories for this research.

Table 3. Frequencies and Percentages for Race/Ethnicity

Demographic	<i>N</i>	%
Race/Ethnicity*		
Non-Hispanic White	850	74
Non-Hispanic Black	151	13
American Indian	14	1
Asian / Pacific Islander	22	2
Hispanic Origin		
Yes	111	9
No	1191	91

* Some participants ($n = 154$) did not provide information regarding their race or ethnic origin.

Individual Level Variables. Frequencies, percentages, mean and standard deviations were calculated for the individual level variables, including income, other victimization, and age. Income for the participants was spread between all three categories for income: less than \$14,999 ($n = 422$, 37%), \$15,000 to \$29,999 ($n = 307$,

27%), and over \$30,000 ($n=422$, 37%). Slightly over half of the participants reported other violent crime victimizations experiences ($n=672$, 52%). The ages of the participants ranged from 12 years old to 90 years of age. The average age of the participants was approximately 27 years of age ($SD=11.92$). Frequencies and percentages for individual level variables are presented in Table 4. Means and standard deviations are presented in Table 5.

Table 4. Frequencies and Percentages for Individual Level Variables

Variable	<i>N</i>	%
Income*		
Less than \$14,999	422	37
\$15,000 to \$29,999	307	27
\$30,000 and over	422	37
Other violent victimizations		
No other violent crimes reported	630	48
Other violent crimes reported	672	52

*For the purpose of this research, income was re-coded as (0 = higher income and missing, 1 = 14,999 and less or low income)

Table 5. Mean and Standard Deviation for Individual Level Variables

Variable	<i>M</i>	<i>SD</i>
Age	27.31	11.92

Familial Level Variables. Frequencies and percentages were calculated for the familial variables including marital status, children in household, and relationship to perpetrator. The most common marital status was never married ($n=765$, 59%) followed by divorced ($n=207$, 16%). Over half of the participants had children living in the household ($n=740$, 57%). The most-selected response to relationship to perpetrator was other (known) ($n=480$, 37%) followed by stranger ($n=286$, 28%). However, participants were free to choose as many responses to the question that applied. Only three percent (n

=39) of participants did not respond. Frequencies and percentages for familial variables are presented in Table 6 below.

Table 6. Frequencies and Percentages for Familial Variables

Variable	<i>N</i>	%
Marital status		
Married	178	14
Widowed	23	2
Divorced*	207	16
Separated	122	9
Never married	765	59
Children in Household		
No	563	43
Yes	736	57
Relationship to perpetrator ^A		
Spouse or ex-spouse	98	8
Other relative	55	4
Girl/boyfriend or ex	172	13
Friend or ex-friend	223	17
Known other	480	37
Stranger	286	28

* For the purpose of this research, divorced and separated participants were combined.

^A Participants could select more than one response to this section.

Community Variables. Frequencies, percentages, means and standard deviations were calculated for community variables including: population density, shopping frequency, number of evenings spent away from home, use of public transportation, employment, attending school, length of time at current address (in months), and number of times moved in last 5 years. One-third of the participants were from a community population size of under 10,000 ($n = 433$, 33%), almost one-fourth ($n = 302$, 23%) lived in a community of 10,000 to 49,999 and the remainder (44%) were spread across larger communities from 50,000 to more than 1 million residents. A majority of the participants were employed (675, 51%). Fourteen percent of the participants attended a college ($n = 117$), 12 percent attended secondary institutions (n

=99), 1 percent attended a trade school ($n = 4$) and 1 percent attended a vocational school ($n = 10$). However, most respondents ($n = 1,074$, 83%) reported not attending any of the schools listed.

On average, participants reporting a sexual victimization experience go shopping almost two times per week ($\mu = 1.94$). Participants on average spend slightly more than two evenings away from home ($\mu = 2.13$). On average the participants ride public transportation more than four days per week ($\mu = 4.18$). Additionally, participants on average have been at their current address for more than 52 months (more than 4 years) ($\mu = 51.84$). Finally, of those participants who had moved, on average, moved more than three times in the last year ($\mu = 3.62$). Frequencies and percentages for community variables are presented in Table 7 below. Means and standard deviations for community variables are presented in Table 8 on the following page.

Table 7. Frequencies and Percentages for Community Variables

Variable	<i>N</i>	%
Population size		
Under 10,000	433	33
10,000 to 49,999	302	23
50,000 to 99,999	141	11
100,000 to 249,999	144	11
250,000 to 499,999	108	8
500,000 to 999,999	91	7
Over 1,000,000	83	6
Employed last week		
Yes	675	51
No	636	49
School*		
Secondary	97	11
College	117	13
Trade	4	1
Vocational	10	1
None of the above schools	1,074	83

* For the purposes of these analyses, school was re-coded to reflect if participants had attended any school (0 = no, 1 = yes).

Table 8. Means and Standard Deviations for Community Engagement Variables

Variable	<i>M</i>	<i>SD</i>
How often going shopping*	1.94	0.82
How often spending an evening away from home	2.13	1.21
How often riding public transportation	4.18	1.36
Length of time at current address (months)	51.84	113.83
Number of times moved in last 5 years	3.62	14.66

* Community engagement activities were calculated based on an average week.

Severity Variables. Frequencies and percentages were calculated for the severity variables including: type of sexual assault (i.e., threat only, attempted rape or sexual assault, sexual assault, or rape) injury as a result of rape, sexual assault, or attempted sexual assault, whether a participant received medical care for injury, if the offender had a weapon, and number of offenders. Of each sexual assault experience (i.e., threat only, attempted rape, sexual assault or rape) more than one-third of participants reported being raped ($n = 505$, 39%). Out of the three categories for injury (i.e., attempted rape injury, sexual assault injury, or rape injury) the greatest number of injuries were a result of rape ($n = 471$, 36%). However, most participants did not receive medical attention for the injury ($n = 1,056$, 81%). Only 10 percent of offenders used a weapon ($n = 124$) and 9 percent of the cases involved two or more offenders. Frequencies and percentages for the severity variables are presented in Table 9 on the following page.

Table 9. Frequencies and Percentages for Severity Variables

Variable	<i>N</i>	%
Sexual assault*		
Threat only (1)	202	16
Attempted (2)	220	17
Sexual assault (3)	327	29
Rape (4)	505	39
Injury*		
Attempted rape injury (1)	88	7
Sexual assault injury (2)	64	5
Rape injury (3)	471	36
Medical care		
Did not receive (0)	1056	81
Received (1)	255	20
Offender had a weapon		
No (0)	1187	91
Yes (1)	124	10
Number of offenders		
Single (0)	1197	91
Two or more (1)	114	9

* Participants could select more than one response to this question. Numbers in parentheses represent the coding used for research question 1.

Research Question 1: Can a valid and reliable scale of sexual assault severity be developed?

To assess research question one, it was anticipated that an exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and Cronbach alpha reliability would be conducted on the severity variables (sexual assault, injury, medical attention sought, number of offenders, and offender use of a weapon). A deductive scale technique was used for this analysis (Hinkin, 1995). Specifically, items were chosen based on a thorough understanding of the topic and possible latent constructs along with an extensive review of the literature in order to generate items (Hinkin, 1995). The sexual assault items were collapsed into a single item, coded as the highest degree of victimization the participant reported. Only 30 participants experienced 2 forms of

sexual assault. In these cases, the highest form of sexual assault was recorded. The same collapsing and coding scheme was used for the injury variable.

Exploratory factor analysis provided for analysis of a large number of variables to show which hang together as a group, or which were answered most similarly by participants (Leech, Barrett, & Morgan, 2005). The results of the EFA using a principal components method with no rotation showed one scale with five variable. Results of the EFA are presented in Table 10 below.

Table 10. EFA on Severity Scale Variables

	Factor 1	Uniqueness	Eigenvalue
Injury	0.83	0.31	0.35
Sexual assault	0.80	0.36	1.52
Number of offenders	-0.03	0.99	-0.19
Received medical attention	0.39	0.85	-0.05
Offender weapon	0.18	0.97	-0.15

The EFA revealed that the variables used for scale development were loading on only one factor. The first column labeled Factor 1 presents the strength of each factor. Specifically, items were considered strong factors at .50 or greater (Costello & Osborne, 2005). The second column labeled Uniqueness is defined as “the percentage of variance that is ‘unique’ to the variable and not shared with other variables” (Torres-Reyna, n.d., p. 3). For example, 31 percent of the variance for injury is not shared with other variables in the overall factor model (Torres-Reyna, n.d.). The greater the uniqueness value, the lower the relevance the variable has in the model. On average, variables with a uniqueness value more than 0.6 are considered high and should be considered for elimination from the scale (StataCorp, 2011, p. 297). Another standard used for retention of factors involves the examination of eigenvalues (third column, Table 10 above).

Specifically, factors with corresponding eigenvalues greater than one are commonly retained (Hinkin, 1995).

Table 11. EFA Summary of Criteria for Retaining Variables

	Factor 1	Uniqueness	Eigenvalue
Injury	Retain	Retain	Drop
Sexual assault	Retain	Retain	Retain
Number of offenders	Drop	Drop	Drop
Received medical attention	Drop	Drop	Drop
Offender weapon	Drop	Drop	Drop

Table 11 above, represents a summary of the criteria used in the first step in assessing whether to retain variables for the severity scale. Using the criteria previously stated, of the five variables used for this analysis, only two variables (i.e., injury and sexual assault) were considered strong enough with a factor of .50 or greater. These variables (i.e., injury and sexual assault) also had uniqueness values that registered lower than 0.6. However, when examining their eigenvalues, sexual assault was the only variable with an eigenvalue greater than one. As a result, based on the criteria used, number of offenders, received medical attention, offender weapon, and injury were further examined to assess whether these variables should be dropped from the severity scale.

The second step in this analysis was to omit a variable to determine if other variables would load differently. The highest uniqueness value (.99) was for number of offenders. Consequently, this variable was omitted from the original model to assess whether the other variables would in fact load differently. The results of the second EFA are presented in Table 12 on the following page. Dropping number of offenders revealed little differences in how factors were loading. Uniqueness values for received medical attention and offender weapon were still higher than the recommended 0.6 and thus,

showed little relevance in the model. Two additional EFAs were conducted; first with offender weapon removed, and second received medical attention was removed from the model. The remaining variables (i.e., injury and sexual assault) again revealed little differences in the model results.

Table 12. EFA on Severity Scale Variables

	Factor 1	Uniqueness	Eigenvalue
Injury	0.80	0.36	0.22
Sexual assault	0.83	0.30	1.52
Received medical attention	0.39	0.85	-0.16
Offender weapon	0.18	0.97	-0.18

While sexual assault was the only variable to meet all the criteria for retention in the model, injury met two of the three requirements for retention. However, upon further examination of these remaining two variables, it was discovered that the variables were highly correlated. For example, those participants reporting a rape also reported rape injury, participants reporting sexual assault also reported sexual assault injury, and lastly, those reporting attempted sexual assault also reported attempted sexual assault injury. A Pearson correlation was conducted to examine the relationship between sexual assault and injury. The results indicated a strong positive relationship between sexual assault and scale. The correlation was statistically significant with a coefficient of $r = .76$, $p < 0.01$ based on $n = 1,302$ observations. When correlation coefficients reach .80, the two variables are indistinguishable from one another in a regression. Based on the results of the correlation and the retention criteria previously discussed, injury was removed from the model, leaving only sexual assault.

Unfortunately, scales with too few variables often may lack “content and construct validity, internal consistency, and test-retest reliability” (Hinkin, 1995). Based

on the results of the EFA, the CFA or confirmatory factor analysis, and Cronbach alpha reliability analysis would not be necessary. Findings revealed that a valid and reliable scale of sexual assault severity could not be developed for this research using the NCVS data. However, the remaining item, sexual assault (threat only, attempted rape, sexual assault, and rape) did provide variation in the severity of sexual assault experiences for participants. The sexual assault variable was created by combining two NCVS questions. The two questions used to create the new dependent variable included threat of violence and type of sexual assault. As a result, the revised variable was used as the dependent variable for the remaining analyses.

Research Question 2: Are there ecological factors that predict severity of sexual assault?

To assess research question two, a multinomial logistic regression was conducted to assess if income, age, race/ethnicity, other victimizations, relationship status, children in the household, population size, and community activities predict severity of sexual assault. Multinomial logistic regression is used when the dependent variable has more than two categories. For this research, as discussed in the previous question, the dependent variable had four categories (i.e., 1 = *threat only*, 2 = *attempted rape*, 3 = *sexual assault*, and 4 = *rape*). As this research examines the severity of sexual assault, the perceived lowest form of victimization (*threat only*) was chosen as the reference group. More specifically, the multinomial logistic regression estimates the effects of the contextual variables on three outcomes: 1) *attempted rape* relative to *threat only*, 2) *sexual assault* relative to *threat only*, and 3) *rape* relative to *threat only*.

The results are reported as Relative Risk Ratios (hereafter referred to as RRR). The RRR indicates the relative risk of each outcome compared to threat only. A $RRR > 1$

indicates that the risk of the specific outcome increases relative to *threat only* as the variable increases. In other words, if the RRR is >1 , the outcome is more likely to be in the comparison group (i.e., *attempted rape*, *sexual assault*, or *rape*) as opposed to the referent group (i.e., *threat only*). A $RRR < 1$ indicates that the risk of a specific outcome decreases relative to *threat only* as the variable increases. In general, if the $RRR < 1$, victims with larger values of the specific variable are more likely to experience threat only compared to more severe outcomes.

Additionally, logistic regression does not have an equivalent to the R-square that is found in ordinary least squares regression (OLS) (UCLA: Academic Technology Services, Statistical Consulting Group, n.d.a). “The model estimates from a logistic regression are maximum likelihood estimates arrived at through an iterative process. They are not calculated to minimize variance, so the OLS approach to goodness-of-fit does not apply” (UCLA: Academic Technology Services, Statistical Consulting Group, n.d.b). To remedy this, often researchers use pseudo R-square in an attempt to mimic the R-squared (Ainsworth, n.d.). Specifically, “pseudo *R* for logistic regression analyses provides a measure of the explained variability in the model” (DeSouza, Fuller-Thomson, 2013, p. 464). However, pseudo R-square should be used with great caution as “[pseudo R-square] looks like R-squared in the sense that they are on a similar scale, ranging from 0 to 1 with higher values indicating better model fit, but they cannot be interpreted as one would interpret an OLS R-squared...” (UCLA: Statistical Consulting Group, n.d.b). The pseudo R-squared tends to be smaller than R-square and values of .2 to .4 are considered highly satisfactory (Ainsworth, n.d.).

Table 13 on the following page presents the results of this analysis. The first column represents attempted rape followed by sexual assault and rape. The body of the table shows the RRR and p-values for each variable on each outcome. The asterisks indicate the level of significance for two-tailed tests. Following ecological theory, each independent variable was categorized as either an individual, familial, or community level variable.

Some respondents failed to answer questions included in these analyses. Unanswered questions included income, employment, education, and all community engagement activities. To avoid missing data, these data were set to zero. Six dummy variables were then included in the model to reduce potential biases resulting from this coding scheme. This technique had been used in previous research (see Dugan, 2003, Dugan & Apel, 2003). Examining all analyses revealed that these dummy variables were not statistically significant; as a result, these variables were included in the model but not included in the tables.

Table 13. Participants Relative Risk Ratios and Two-Tailed P-values for Predictors of Sexual Assault Severity ^A

Variables	Attempted Rape		Sexual Assault		Rape	
<i>Individual</i>	RRR	P-values	RRR	P-values	RRR	P-values
Low Income	0.969	0.910	0.800	0.331	1.125	0.623
Age	0.951	0.001**	0.983	0.146	0.971	0.025*
Other Victimization	0.019	0.000**	0.267	0.000**	0.028	0.000**
<i>Race/Ethnicity (ref. non-Hispanic White)</i>						
Non-Hispanic Black	2.271	0.048*	1.538	0.240	1.788	0.130
Hispanic	1.787	0.163	1.298	0.455	1.270	0.530
Asian	0.513	0.504	1.050	0.943	1.197	0.811
American Indian	0.696	0.807	3.344	0.274	1.562	0.704
<i>Familial</i>						
<i>Marital Status (ref. never married)</i>						
Married	0.489	0.090	0.781	0.417	0.582	0.120
Widow ^B	11.136	0.020*	5.750	0.043*	3.056	0.264
Divorced or Separated	3.544	0.001**	2.020	0.025*	2.493	0.007**
Children in Household	0.643	0.095	0.636	0.037*	0.815	0.386
<i>Relationship to Perpetrator (ref. stranger)</i>						
Spouse	3.152	0.042*	1.966	0.151	12.369	0.000**
Other Family Member	1.934	0.290	2.802	0.036*	1.936	0.235
Boy/Girlfriend	6.774	0.000**	3.498	0.004**	13.777	0.000**
Friend	2.620	0.008**	2.192	0.009**	4.358	0.000**
Other Known	1.953	0.016*	2.252	0.000**	2.296	0.001**
<i>Community</i>						
Population Density	1.000	0.368	1.000	0.599	1.000	0.700
<i>Community Engagement Activities</i>						
Worked last week	0.684	0.170	0.935	0.771	0.470	0.002**
Number of days a week shopping	1.270	0.156	1.095	0.528	1.242	0.152
Number of evenings spent away from home	0.820	0.119	1.031	0.763	0.914	0.423
Number of times using public transportation	1.079	0.355	0.950	0.454	1.001	0.985
Currently attending any school	0.514	0.054	0.930	0.788	0.766	0.369
Number of times moved in last five years	0.991	0.860	1.027	0.496	1.042	0.316
Number of months spent at current address	1.000	0.562	0.999	0.753	1.000	0.914

*P-value < 0.05; **P-value < 0.01

^A The reference outcome group was threat only

^B The distribution of widows across severity outcome was: threat only ($n = 2$), attempted rape ($n = 5$), sexual assault ($n = 11$), and rape ($n = 5$)

When examining individual level variables, the risk of being a victim of an attempted rape versus experiencing a threat only decreased by nearly 5 percent [(RRR=1-.951)*100] with each additional year of age when all other variables were held constant. Moreover, the risk of being raped versus a threat only also decreased by nearly 3 percent (RRR= 0.971) with each additional year of age. It appears that older participants were more likely to experience a threat of violence as opposed to attempted rape or rape. Additionally, for participants reporting other violent victimizations such as robbery, assault, or larceny, the risk of being a victim of attempted rape compared to experiencing a threat only decreased by 98 percent (RRR= 0.019) with every additional victimization experience reported. These participants were also 73 percent (RRR=0.267) less likely to experience a sexual assault and 97 percent (RRR=0.028) less likely to experience a rape when compared to threat only. The last individual level variable that was significant was for non-Hispanic Black participants. When compared to other women in the sample, Black women were 2.27 times more likely to experience an attempted rape compared to just a threat of violence.

Examining familial level variables revealed significant results. For example, widowed participants were 11.13 times more at risk to experience attempted rape and nearly 6 times more likely to be sexually assaulted than being threatened by sexual victimization only. However, because there are so few widows in the sample ($n = 23$), readers should be cautious when interpreting this finding. Divorced or separated women in the sample were 3.54 times more likely to experience attempted rape, 2.02 times more likely to be sexually assaulted and 4.50 times greater risk of being raped when compared

to threat only. Additionally, when children were present in the household, women experienced a 36 percent decrease in sexual assault compared to threats only. These women were more likely to be threatened with sexual assault than any other form of sexual assault.

Additionally, when the perpetrator of the victimization experience was a spouse, women were 3.15 times more likely to experience an attempted rape and 12.37 times more likely to be raped than threatened. When reporting that the perpetrator was another family member (excluding spouse), women were 2.8 times more likely to be sexually assaulted compared to a threat. Similarly, when participants reported that their assailant was a boy or girlfriend; women were 6.8 times more likely to experience an attempted rape, 3.50 times more likely to experience a sexual assault, and 13.78 times more likely to be raped compared to threat only. Moreover, participants who reported that the perpetrator was a friend were 2.60 times more likely to experience an attempted rape, 2.20 times more likely to be sexually assaulted, and 4.36 times more likely to be raped when compared to threat only. When reporting that the perpetrator was an acquaintances or other known individual, women were 2.00 times more likely to experience an attempted rape, 2.25 times more likely to experience a sexual assault, and 2.30 times more likely to be raped compared to threat only.

The only community level variable that was significant involved daily community engagement activities. Women who reported working the previous week were 53 percent (RRR= 0.470) more likely to experience a threat of violence compared to being raped. Although a strong trend, it is still worth noting that participants attending any type of school were 49 percent (RRR=0.514) more susceptible to threats as opposed to

experiencing an attempted rape. The pseudo R-square for the full model was .2, indicating satisfactory fit.

Table 14 below is a summary table of results for research question 2. The plus and minus signs show the association of each variable to the referent group (*threat only*). A $RRR > 1$ indicates that the risk of the specific outcome increases relative to *threat only* as the variable increases. A $RRR < 1$ indicates that the risk of a specific outcome decreases relative to *threat only* as the variable increases. In other words, the association increases (+) in severity of sexual assault or decreases (-) in severity of sexual assault. For example, age was reported as having a $RRR < 1$ or $RRR = 0.951$, so this association is shown as a minus sign.

Table 14. Summary of Significant Variables for Participants

Variables	Attempted Rape	Sexual Assault	Rape
<i>Individual</i>			
Age (Older)	-		-
Other Victimization	-	-	-
Non-Hispanic Black	+		
<i>Familial</i>			
<i>Marital Status</i>			
Widow	+	+	
Divorced or Separated	+	+	+
Children in Household		-	
<i>Relationship to offender</i>			
Spouse	+		+
Other Family Member		+	
Boy/Girlfriend	+	+	+
Friend	+	+	+
Other Known	+	+	+
<i>Community</i>			
Worked last week			-

Research Question 3: For each race/ethnicity category, to what extent do ecological factors influence severity of sexual assault?

To assess this research question, multinomial logistic regression was run separately for each racial and ethnic group. However, for this question, the only race/ethnicity categories included were Hispanic ($n = 111$), non-Hispanic Black ($n = 151$), and non-Hispanic White ($n = 850$) as the other race categories did not have high enough numbers to be included in these analyses. Additionally, since Hispanic was a separate question, any participant that selected “yes” to having Hispanic origin was considered Hispanic.

Frequencies and percentages were also calculated based on race/ethnicity and severity of sexual assault. A total of 1,112 participants were identified for these analyses. Please refer to Table 15 below for complete details. Many respondents (39%) reported being raped followed by sexual assault (27%), then attempted rape (18%), and finally threatened only (4%). The total percentage of rapes, compared to all other forms of sexual assault, was the highest, for all three race/ethnicity categories.

Table 15: Frequencies and Percentages of Sexual Assault Severity by Race/Ethnicity

Variables	Threat Only		Attempted Rape		Sexual Assault		Rape	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
<i>Non-Hispanic Black</i>	13	9	35	23	38	25	65	43
<i>Hispanic</i>	17	15	30	27	24	22	40	36
<i>Non-Hispanic White*</i>	142	17	139	16	242	28	327	38

*Percentage does not equal 100 percent due to rounding

Results of the regression for individual level variables are presented in Table 16 on page 70. All Hispanic, non-Hispanic Black, and non-Hispanic White women reporting to have experienced another form of victimization appeared to have a lower risk of sexual assault. Non-Hispanic Black women were 99 percent ($ROR = 0.009$) more likely to be threatened with violence as opposed to experiencing an attempted rape and 98

percent ($RRR = 0.022$) more likely to be threatened with rape compared to being raped. Similar findings were discovered for Hispanic and non-Hispanic White women in the sample. However, for non-Hispanic White women only, they were also 76 percent ($RRR = 0.237$) less likely to be sexually assaulted and were more likely to be threatened than any other form of victimization.

For Hispanic women, the risk of being a victim of a sexual assault versus experiencing a threat only was 6.90 times greater for women living in lower socioeconomic levels when all other variables were held constant. Additionally, Hispanic women reporting lower incomes were also 9.74 times more likely to be raped compared to experiencing a threat only. Older non-Hispanic White women were also less likely to experience an attempted rape compared to threats only. More specifically, with each additional year of age, the risk of experiencing an attempted rape compared to just being threatened decreased by nearly 4 percent ($RRR = 0.960$).

Table 16. Race/Ethnicity Relative Risk Ratios for Individuals Level Variables, Two-Tailed P-values for Predictors of Sexual Assault Severity ^A

Variables	Attempted Rape		Sexual Assault		Rape	
<i>Individual</i>	RRR	P-values	RRR	P-Values	RRR	P-values
<i>Non-Hispanic Black</i>						
Low Income	3.040	0.224	2.518	0.276	2.834	0.225
Age	0.999	0.986	1.029	0.480	1.019	0.649
Other Victimization	0.009	0.000**	0.178	0.137	0.022	0.001**
<i>Variables</i>	Attempted Rape		Sexual Assault		Rape	
<i>Individual</i>	RRR	P-values	RRR	P-values	RRR	P-values
<i>Hispanic</i>						
Low Income	7.826	0.060	6.904	0.046*	9.741	0.029*
Age	0.930	0.214	1.006	0.893	0.900	0.070
Other Victimization	0.012	0.000**	0.635	0.676	0.014	0.000**
<i>Variables</i>	Attempted Rape		Sexual Assault		Rape	
<i>Individual</i>	RRR	P-values	RRR	P-values	RRR	P-values
<i>Non-Hispanic White</i>						
Low income	0.851	0.627	0.599	0.062	0.907	0.735
Age	0.960	0.028*	0.980	0.162	0.995	0.790
Other Victimization	0.017	0.000**	0.237	0.000**	0.024	0.000**

*P-value < 0.05; **P-value < 0.01

^AThe reference outcome group was threat only

Table 17 on the following page represents the findings for familial level variables for each race/ethnicity. Because of the lack of cases, a variable cell with less than ten total cases was dropped from the model. For example there was only one Hispanic widow in this sample, as a result, that variable was omitted from the model. For non-Hispanic Black American participants, no familial level variables were significant.

Table 17. Race/Ethnicity Relative Risk Ratios for Familial Level Variables, Two-Tailed P-values for Predictors of Sexual Assault Severity ^A

Variables	Attempted Rape		Sexual Assault		Rape	
<i>Familial</i>						
<i>Non-Hispanic Black</i> ^B	RRR	P-values	RRR	P-values	RRR	P-values
Children in Household	3.706	0.186	1.988	0.457	2.338	0.358
<i>Relationship to Perpetrator (ref. stranger)</i>						
Friend	0.431	0.404	0.407	0.337	0.562	0.533
<i>Variables</i>	Attempted Rape		Sexual Assault		Rape	
<i>Familial</i>						
<i>Hispanic</i> ^C	RRR	P-values	RRR	P-values	RRR	P-values
<i>Marital Status (ref. never married)</i>						
Married	10.783	0.133	2.808	0.430	11.207	0.114
Divorced or Separated	34.536	0.011*	3.665	0.284	27.379	0.014*
Children in Household	0.441	0.452	0.610	0.623	0.590	0.618
<i>Relationship to Perpetrator (ref. stranger)</i>						
Other Known	5.700	0.137	6.744	0.069	3.123	0.318
<i>Variables</i>	Attempted Rape		Sexual Assault		Rape	
<i>Familial</i>						
<i>Non-Hispanic White</i>	RRR	P-values	RRR	P-values	RRR	P-values
<i>Marital Status (ref. never married)</i>						
Married	0.320	0.024*	0.606	0.164	0.300	0.004**
Widow	2.481	0.529	4.624	0.099	0.771	0.831
Divorced or Separated	2.617	0.035*	2.198	0.036*	1.585	0.254
Children in Household	0.668	0.216	0.624	0.074	0.877	0.652
<i>Relationship to Perpetrator (ref. stranger)</i>						
Spouse	3.048	0.089	1.148	0.806	13.466	0.000**
Other Family Member	1.068	0.937	2.487	0.105	2.851	0.100
Boy/Girlfriend	6.921	0.001**	2.861	0.043*	14.352	0.000**
Friend	2.637	0.026*	2.101	0.042*	5.256	0.000**
Other Known	1.815	0.087	2.227	0.003**	2.441	0.004

*P-value < 0.05; **P-value < 0.01

^A Reference outcome group is threat only

^B Non-Hispanic Black participants did not have high enough numbers in many of the familial level variables. Those variables with low numbers were taken out of the model for analyses. The familial level variables taken out were widow, married, divorced, never married or separated. Several categories referring to relationship to the perpetrator also had low numbers and were subsequently removed. These variables included spouse, other family member, boy/girlfriend, and other known.

^C Hispanic participants did not have high enough numbers for the widow category. Additionally, perpetrator relationship including spouse, other family member, boy/girlfriend, and friend only were omitted.

Moreover, when examining marital status, of those Hispanic women who reported being divorced or separated, they were 34.54 times more likely to experience an attempted rape. They were also 27.38 times more likely to be raped when compared to the referent group. Hispanic women who were divorced or separated were at the greatest risk of sustaining severe forms of sexual assault.

For non-Hispanic White participants in the study, those who were married were 70 percent (RRR = 0.300) less likely to be raped and 68 percent (RRR = 0.320) less likely to experience an attempted rape. Conversely, those who reported being divorced or separated were 2.20 times more likely to be sexually assaulted and 2.62 times more likely to experience an attempted rape. Examining victim relationship to perpetrator, when the perpetrator was reported as a spouse, non-Hispanic White women were 13.47 times more likely to be raped. When the perpetrator was a girl/boyfriend, this number was even higher with 14.35 times greater risk of being raped and 2.90 times more likely to be sexually assaulted, and nearly 7 times more likely to experience an attempted rape. Participants were also 2.63 times at greater risk of experiencing an attempted rape, 2.10 times more likely to be sexually assaulted, and 5.26 times more likely to be raped when the assailant was reported as a friend. Women who reported that the assailant was an acquaintance or other known individual, were 2.22 times more likely to be sexually assaulted compared to being threatened only.

Community level variables for non-Hispanic Black, Hispanic, and non-Hispanic White women were the final group of variables to be examined. Overall, few community level variables were significant for any group. As shown in Table 18 on the following

page, no community level variables were found to be significant for non-Hispanic Black participants.

Table 18. Non-Hispanic Black Relative Risk Ratios for Community Level Variables, Two-Tailed P-values for Predictors of Sexual Assault Severity^A

Variables	Attempted Rape		Sexual Assault		Rape	
<i>Community</i>	RRR	P-values	RRR	P-values	RRR	P-values
<i>Non-Hispanic Black</i> ^B						
Population Density	0.999	0.467	0.999	0.649	0.999	0.432
<i>Community Engagement Activities</i>						
Worked last week	0.691	0.713	1.583	0.628	0.699	0.704
Number of days a week shopping	1.061	0.906	0.978	0.962	1.122	0.799
Currently attending any school	0.181	0.140	0.715	0.723	0.372	0.324
Number of months Spent at current address	1.00	0.544	1.002	0.720	1.003	0.620

*P-value < 0.05; **P-value < 0.01

^A The reference outcome group was threat only

^B Community level variables that were omitted from this analysis were number of times a week using public transportation, number of evenings during the week spent away from home, and the number of times moved in the last five years.

There were only two significant findings for Hispanic women in the study. Table 19 on the following page shows the outcome for each community level variable.

Hispanic participants who worked the previous week were 89 percent (RRR = .106) more likely to be threatened than to experience an attempted rape, 85 percent (RRR = .155) more likely to experience a threat when compared to sexual assault, and 93 percent (RRR = 0.068) more likely to be threatened than raped. Also, the number of times a participant moved in the last 5 years was significant. Specifically, with each increase in the number of times moved, Hispanic women were 1.64 times more at risk of experiencing an attempted rape.

Table 19. Hispanic Relative Risk Ratios for Community Level Variables, Two-Tailed P-values for Predictors of Sexual Assault Severity ^A

Variables	Attempted Rape		Sexual Assault		Rape	
<i>Community Hispanic</i> ^B	RRR	P-values	RRR	P-values	RRR	P-values
Population Density	0.999	0.592	0.998	0.319	0.999	0.527
<i>Community Engagement Activities</i>						
Worked last week	0.106	0.036*	0.155	0.043*	0.068	0.010*
Number of days a week shopping	0.578	0.322	0.637	0.350	0.479	0.182
Currently attending any school	4.392	0.239	1.969	0.514	2.972	0.363
Number of times moved in last five years	1.639	0.047*	1.143	0.538	1.457	0.109
Number of months Spent at current address	1.024	0.191	1.006	0.708	1.035	0.052

*P-value < 0.05; **P-value <0.01

^A The reference outcome group was threat only

^B Community level variables that were omitted from this analysis were number of times a week using public transportation and number of evenings during the week spent away from home.

Table 20 on the following page represents the findings for community level variables for non-Hispanic White participants in the study. Only one community level variable was significant. Those women who reported working the previous week were 54 percent (RRR = 0.465) less likely to be raped.

Table 20. Non-Hispanic White Relative Risk Ratios for Community Level Variables, Two-Tailed P-values for Predictors of Sexual Assault Severity ^A

Variables	Attempted Rape		Sexual Assault		Rape	
<i>Community</i>						
<i>Non-Hispanic White</i> ^B	RRR	P-values	RRR	P-values	RRR	P-values
Population Density	1.000	0.208	1.000	0.256	1.000	0.638
<i>Community Engagement Activities</i>						
Worked last week	0.747	0.388	0.888	0.668	0.465	0.010**
Currently attending any school	0.572	0.208	0.993	0.986	0.990	0.979
Number of times moved in last five years	0.947	0.339	1.026	0.563	1.015	0.745
Number of months Spent at current address	1.000	0.920	0.999	0.672	0.998	0.261

*P-value < 0.05; **P-value < 0.01

^A The reference outcome group was threat only

^B Community level variables that were omitted from this analysis were number of times a week using public transportation, number of evenings during the week spent away from home, and the number of times a week the participant goes shopping.

Table 21 on the following page is a summary of all variables found to be significant for research question 3. A RRR > 1 indicates that the risk of the specific outcome increases relative to *threat only* as the variable increases. A RRR < 1 indicates that the risk of a specific outcome decreases relative to *threat only* as the variable increases. In other words, the association increases (+) in severity of sexual assault or decreases (-) in severity of sexual assault.

Table 21. Summary of Results for Research Question 3

Variables	Attempted Rape	Sexual Assault	Rape
<i>Individual</i>			
<i>Non-Hispanic Black</i>			
Other victimization	-		-
<i>Hispanic</i>			
Low Income		+	+
Age			
Other victimizations	-		-
<i>Non-Hispanic White</i>			
Age	-		
Other victimization	-	-	-
<i>Familial</i>			
<i>Hispanic</i>			
<i>Marital Status</i>			
Divorced or Separated	+		+
<i>Non-Hispanic White</i>			
<i>Marital Status</i>			
Married	-		-
Divorced or Separated	+	+	
<i>Relationship to offender</i>			
Spouse			+
Boy/girlfriend	+	+	+
Friend	+	+	+
Other Known		+	
<i>Community</i>			
<i>Hispanic</i>			
<i>Community Engagement Activities</i>			
Worked last week	-	-	-
Number of times moved in last five years	+		
<i>Non-Hispanic White</i>			
<i>Community Engagement Activities</i>			
Worked last week			-

Chapter 5: Discussion and Conclusion

This chapter summarizes the major findings of this study and places these findings in the context of existing research. Suggestions for possible implications for theory and research, and applications for policy/practices are explored. Limitations of the current study are examined along with future directions in research.

Summary of Key Findings

The purpose of this study was to build on previous research and provide an empirical comprehensive examination of ecological factors and the impact these factors have on severity of sexual assault. In order to achieve this purpose, the development of a sexual assault severity scale was attempted. Specifically, research question 1 posited, can a valid and reliable scale of sexual assault severity be developed? Unfortunately, a severity scale using the NCVS data could not be developed as proposed. The original scale for this research consisted of five items including type of sexual assault (i.e., attempted rape, sexual assault, and rape), injury sustained as a result of the assault, medical attention sought at the time of the incident, offender weapon, and number of offenders. After examining the results of the factor analyses, the five items intended to describe the severity construct did not meet the criteria for scale development. Perhaps a larger set of items should have been used to describe severity for scale development. Specifically, DeVellis (2012) suggests that for scale development, the number of items selected should be considerably more than the researcher plans to use in a scale. While there is no recommended number for an initial pool of items, DeVellis contends that it is not unusual to have an item pool four times the number of the final scale. Each item selected for this research was assembled based on prior empirical research. Because

there is a paucity of research examining severity of sexual assault, very little empirical data exists and thus items to use for scale development were limited.

However, in order to develop a dependent variable that could serve as a proxy for the severity scale, it was necessary to combine the overall threat variable and the sexual assault variable (i.e., attempted rape, sexual assault, and rape) to construct the new dependent variable. Combining the two variables into one (i.e., threat, attempted rape, sexual assault, or rape) proved to be beneficial for this research. Specifically, instead of inferring that the original five variables represented severity of sexual assault, participants self-identified their level of severity by answering explicit questions about their victimization experience. Participants assessed their own level of severity thus making the new dependent variable more reliable as it was based on the respondent's own assessment of her victimization experience.

The second research question examined if ecological factors predicted severity of sexual assault. Following ecological theory, each independent variable was categorized as either an individual (i.e., income, age, other victimization experiences, and race/ethnicity), familial (i.e., relationship status, children in the household, and relationship to perpetrator) or community (i.e., population size and community activities) level variable.

Individual Level Variables

Income. Contrary to some research investigating income and sexual assault (see Karmen, 1982; Mosher, Miethe, & Phillips, 2002) income did not predict sexual assault severity for this research. While more than a quarter ($n = 422$ or 37 percent) of the sample for this research indicated having a household income of less than \$15,000 a year,

income was not a predictor of sexual assault severity. The Bureau of Justice Statistics (1996) found that women with a household income under \$7,500 are twice as likely as the general population to be sexual assault victims. While a plethora of research has shown a link between low income and sexual assault, perhaps other underlying mechanisms are at play in this research. For example, research conducted by Greco and Dawgert (2007) for the Pennsylvania Coalition Against Rape, contend that sexual assault perpetrators often seek out vulnerable victims or those that “lack power in society” such women, very young or old persons, individuals with disabilities, sexual or racial/ethnic minorities, homeless or those individuals living in poverty (p. 7). Specifically, perpetrators intentionally seek out vulnerable individuals because they are often less likely to report or when reporting an incident of victimization, are less likely to be believed (Greco & Dawgert, 2007).

Poverty serves “to silence and discredit victims/survivors, especially when it is compounded by other forms of oppression and isolation” (Greco & Dawgert, 2007, p. 7). Additionally, women living in disadvantaged communities often lack culturally competent services to assist victims once a sexual assault incident has occurred (Low & Organista, 2000). As a result, perhaps the women in this research did experience more severe forms of sexual victimization but were reluctant to report the entire incident to the NCVS interviewer. Incidents involving rape and other forms of sexual victimization are often difficult to discuss for victims and thus may have been minimized. Complicating matters, interviews were conducted over the telephone and thus, may not have been the best method to collect sensitive information (Dugan, 2011).

Age. Age of respondents was also examined for this research. Age was a predictor of severity of sexual assault. Specifically, with each year increase in age, women in this sample were more likely to be threatened only compared to attempted rape. The average age of the women participating in this research was 27 years of age. While no woman is immune to sexual assault, this research would suggest that older participants experienced less physical forms of victimization. Research conducted by Mosher and colleagues (2002) also confirmed this finding suggesting that sexual assault decreases dramatically after the age of 25. Although this research supports this finding, other research has suggested that perhaps the rate of sexual assault among women, regardless of age, is similar, but comfort level in reporting sexual assault may be different. Older women may be more reluctant to report their sexual assault experiences when compared to younger women. Research conducted by Muram and colleagues (1992) suggested that older women experienced more severe forms of genital injury as a result of a sexual assault. Perhaps the older woman in this sample were more embarrassed by the experience or did not define the experience as “rape” and thus may have minimized the incident to the police or a NCVS interviewer. Additionally, most research examining sexual assault uses convenience samples entirely made up of college-aged women. It is possible that older women are neglected in sexual assault research and experience similar levels of sexual victimization.

Other Victimization Experiences. Results indicated that women reporting other victimization experiences excluding other sexual assaults were more likely to experience a threat of violence in comparison to attempted rape, sexual assault, and rape. While there is a plethora of research suggesting that previous sexual assaults typically predicts

future sexual assault experiences, perhaps other victimization experiences such as burglary or motor vehicle theft may add a heightened level of vigilance regarding sexual assault crimes. For example, following a crime, victims often feel a loss of control in combating future crime (Sheridan & Lyndon, 2012). As a result, to overcompensate for the loss of control, perhaps female victims tend to become more vigilant or change previous behavioral patterns that may have placed them in more vulnerable situations. There is also a possibility that the women in this sample did experience previous forms of sexual assault but were reluctant to report previous sexual victimization experience. Specifically, these women may be less willing to report a sexual assault and felt more comfortable reporting other forms of victimization. Additionally, a previous sexual assault may also have fallen outside the reporting period and thus was not included in these analyses.

Race/Ethnicity. For race/ethnicity, categories included Non-Hispanic Blacks, Native Americans, Asian/Pacific Islander, non-Hispanic White, and those participants reporting being of Hispanic origin. There was only one significant finding involving race. Specifically, when examining race, non-Hispanic Black women were more likely to experience attempted rape compared to threat only. This is partially supported by other research examining sexual assault among ethnically diverse samples (e.g., Maier, 2008; Olive, 2012; Roberts, Watlington, Nett, & Batten, 2010). Specifically, much of the rape-related research suggests that women of color are more likely to be raped; however, this research suggested that non-Hispanic Black women were more likely to experience an attempted rape compared to being threatened. However, it is important to note that research suggests Black women in particular are even more reluctant to report rape to the

authorities because of underlying cultural expectations or what has been called “a culture of silence” due to an overall suspicion of the criminal justice system (Maier, 2008, p. 307).

Research suggests that Black women are less likely to disclose sexual assault because of the negative social reactions often associated with rape or a fear of not being believed (Maier, 2008; Roberts et al., 2010). In her seminal research exploring African Americans experiences in therapy, Boyd-Franklin (2003), explains how important “family secrets” are in African American families. She describes two types of family secrets: 1) “those that are kept from ‘outsiders’ but are known by most family members; and 2) those that are kept from other family members” (p. 25). While most families have secrets, African American families are particularly sensitive to sharing secrets with “outsiders” due to an overall mistrust fostered by years of institutional racism (Boyd-Franklin, 2003). The notion of secrets is very important when discussing sexual assault, especially if the perpetrator was a family member. As a result, it is possible that non-Hispanic Black women in the sample did experience a completed rape as opposed to an attempted rape but were reluctant to report these actions. While this research did have significant findings based on race/ethnicity, it is worth noting the limited number of women of color in this study.

Familial Level Variables

Familial level variables for this research included relationship status, whether children were living in the household at the time of the incident, and relationship to the perpetrator. Findings for each familial level variable are described in the following sections.

Relationship Status. Relationship status included married, widowed, divorced, separated, or never married. Many participants ($n = 765$) reported never being married followed by divorced or separated ($n = 329$) then married ($n = 178$), and finally widowed ($n = 23$). For relationship status, two variables were significant for widows, and divorced or separated participants. However, it is important to note that there were only 23 widows in the sample, as a result; the reader should be cautious when interpreting these findings. Although there were so few widows in the sample, widowed women were 11 times more at risk to experience attempted rape and 5 times more likely to be sexually assaulted than being threatened with sexual victimization only. While there is research to suggest older females may be less likely to experience any form of sexual assault, widowed females in the study were more at risk for experiencing attempted rape and sexual assault compared to a threat only. Research conducted by the United Nations (2001) concluded that, widows share two distinct characteristics: 1) a loss of social status, and 2) reduced economic circumstances. Loss of income and social status aids in the marginalization of these women thus increasing “vulnerability to depression, ill health, and violence” (United Nations, 2001, p. 5-6). For the widowed women in this study, 18 out of 23 reported family income as \$30,000 or lower. Nine of the 18 reported income lower than \$15,000. Many of the widows were over the age of 50, lived with family members, and were sexually assaulted by someone they knew. Perhaps widowed women may also be participating in activities that place themselves in vulnerable situations that lead to increased contact with potential perpetrators. The NCVS includes activities researchers have suggested may increase exposure to potential perpetrators. For example, activities such as evenings spent away from home and the use of public

transportation. For the widows in this study, 12 of the 23 widows used public transportation more than 3 times a week and 13 spent more than 3 evenings away from home a week.

When examining other relationship status categories, divorced or separated was also a predictor of severity of sexual assault. Specifically, divorced or separated women were more likely to experience rape, sexual assault, and attempted rape compared to a threat only. Research suggests that newly divorced or separated women are at greater risk of intimate partner violence (Lauritsen & Schraum, 2004). Specifically, the most harmful time for women in a relationship tends to be during the process of a break up. While this research cannot assess the timing of a divorce or separation and a sexual assault victimization experience, it is important to note this possible dynamic. However, when examining their relationship to the perpetrator, of those women that were either divorced or separated, only 21 percent ($n = 69$) reported that their current or former spouse was the perpetrator while 32 percent named an acquaintance as the perpetrator.

Similar to the widows in the sample, perhaps divorced or separated women may be placing themselves at greater risk of possible contact with perpetrators. For example, more than half the divorced or separated women spent two or more evenings away from home and had used public transportation more than five times a week. Additionally, 56 percent of divorced or separated women also moved more than three times in five years. This lack of continuity in a community may decrease the likelihood of knowing neighbors or knowing high crime areas which could be protective factors against crime.

Children in the Household. Nearly 60 percent ($n = 736$) of the women in the sample reported having children in the household. Findings from this research suggest

that having children in the household may be a buffer to more severe forms of sexual assault. Women, who had children in the household, were more likely to experience a threat of violence as opposed to a sexual assault. This finding contradicts the literature on intimate partner violence that suggests having children in the household appears to be more harmful for women (Cardarelli, 1997; Fantuzzo, Fusco, Mohr, & Perry, 2007). Specifically, research conducted by Fantuzzo and colleagues (2007) revealed a higher incidence of intimate partner violence in homes where children were present. However, these findings may be a result of a marital relationship and not the fact that children were in the household. Specifically, in the current study, most of the women in this sample were never married but had children living in the household. As a result, perhaps for unmarried women, children living in the household provided a protective factor. Of those women reporting to have children in the household, nearly 80 percent ($n = 583$) knew their perpetrator. Perhaps these women were more vigilant around potential perpetrators because children were present in the house at the time of the incident.

Relationship to Perpetrator. Consistent with other research (see Stermac et al., 2006; Apel et al., 2011) when participants reported that the perpetrator was a spouse or boy/girlfriend, women in the current study were more likely to experience more severe forms of sexual assault as opposed to a threat only. Additionally, women reporting that the perpetrator was a family member, friend, or an acquaintance were also at risk of experiencing more severe forms of sexual assault. Much sexual victimization research suggests that a majority of sexual assaults occur between individuals known to each other (Woods & Porter, 2008). For this research, nearly 76 percent of respondents ($n = 989$) reported knowing the perpetrator. Research conducted by Apel and colleagues (2011)

suggests that relational distance between victim and perpetrator can be conceived as a continuum, ranging from intimate partners to strangers” (p. 4). In other words, relational distance is the degree of closeness in a relationship. Research examining victim/perpetrator relationships suggests that a close relational distance between a victim and perpetrator may increase frequency of contact and thus may increase accessibility to a victim’s personal space and increase the chances of an assault (Apel et al., 2011). Relationships involving a spouse, other family member, boy/girlfriend, friend, or an acquaintance may give a victim a false sense of security fostering behaviors not normally present when a threat is eminent. Victims may tend to trust relationships that are close in relational distance even when it is not safe to do so.

Community Level Variables

Community level variables for this research included variables such as, population density and community engagement activities. Community engagement activities included how often the participant goes shopping in a week, how many evenings in a week are spent away from home, how often the participants rides public transportation, length of time at current address (in months), and finally, of those participants that had moved residence, how often have they moved in the last five years?

Population Density. For this research, population density did not predict severity of sexual assault. Some researchers have speculated that victimization is not a matter of geographic region or community type such as urban or rural but the number of people living in highly populated areas that perhaps increases one’s chances of interacting with a potential perpetrator (George et al., 1992). However, of 1,302 participants, 735 or 56 percent of participants reported living in smaller communities that were less than 30,000

in population. According to Lewis (2003) a reluctance to report or minimize sexual assault incidences is more prevalent in smaller communities because of the “high level of familiarity among residence [which] means that the sexual assaults that occur are quite likely to be perpetrated by an acquaintance...” (p. 3, brackets added). Of those respondents living in smaller communities, 586 or nearly 80 percent knew their assailant. Perhaps, many respondents in this study minimized their experiences because of the familiarity with their assailant. Additionally, smaller communities often lack resources of services for sexual assault survivors so respondents may have been reluctant to discuss details about their experiences due to a lack of support services or other resources (Lewis, 2003).

Community Engagement Activities. Community engagement activities included how often the participant goes shopping in a week, how many evenings in a week are spent away from home, how often the participants rides public transportation, length of time at current address (in months), and finally, of those participants that had moved residence, how often have they moved in the last five years? The only community engagement activity that was significant was for participants reporting work the prior week to the NCVS interview. While working may increase chances of contact with perpetrators, women reporting work the previous week were more likely to be threatened only then raped. Perhaps working the previous week reveals an underlying mechanism that speaks more to one’s ability to gain access to financial resources and not necessarily working. Those respondents that reported working last week also reported having higher incomes (above \$15,000). Working women in this research may have more financial

resources that may lead to safer neighborhoods, living arrangements, or transportation options.

Other community engagement activities such as number of days spent shopping, evenings away from home, use of public transportation, length of time at current address or number of times moved in last five years were not significant in this research.

Researchers for the NCVS have identified these activities as having an association with crime victimization. Perhaps missing data was a reason for these activities not showing statistical significance. Many respondents did not provide information for these lifestyle questions or were reluctant to give details. For example, when asked how many evenings spent away from home, of the 1,302 participants, 343 or 26% did not respond.

Race/Ethnicity Differences

The third research question addressed by this research posited, for each race/ethnicity category, to what extent do ecological factors influence severity of sexual assault? While many women are often treated with skepticism when disclosing sexual assault, women of color have historically been treated with greater skepticism and tend to receive additional negative social reactions when disclosing (Starzynski et al., 2005). As a result, it has been difficult for researchers to gather data on large, culturally diverse samples of women. As little research exists on the severity of sexual assault, even less is known about sexual assault severity based on race/ethnicity. For this reason, this research examined Non-Hispanic Black, Hispanic, and Non-Hispanic White participants separately in order to assess any difference found as a result of race/ethnicity.

Individual Level Variables. When examining individual level variables for each race/ethnicity category, Hispanic, non-Hispanic Black, and non-Hispanic White women

who report having experienced another form of victimization appear to have a lower risk of sexual assault. The only significant finding related to age was for older non-Hispanic White women in the sample. As age increased, non-Hispanic White women were less likely to experience an attempted rape as opposed to a threat only. Overall, older participants may have been less likely to experience more violent forms of sexual assault. Interestingly, for Hispanic women, the risk of being a victim of a sexual assault or rape versus experiencing a threat only was greater for Hispanic women reporting lower levels of income. It would appear that low income for Hispanic women increased risk of the most severe form of sexual victimization.

Familial Level Variables. Additionally, Hispanic women who reported being divorced or separated were significantly more likely to experience more severe forms of sexual assault. More than half (61%) of Hispanic participants knew their perpetrator. Non-Hispanic White women who reported being divorced or separated were also more likely to experience severe forms of victimization. Again, perhaps divorced or separated women are engaging in activities that may place these women at higher risk of victimization. Interestingly, this would perhaps explain why non-Hispanic White participants who were married were less likely to experience an attempted rape or a sexual assault.

Most variables regarding relationship to the offender for non-Hispanic White participants were significant. Specifically, when respondents indicated that the perpetrator was a spouse, boy or girlfriend, friend, or an acquaintance, non-Hispanic White women were more likely to experience more severe forms of sexual assault. This

finding is not surprising given all the research suggesting that sexual assault typically occurs between individuals that are known to each other (Woods & Porter, 2008).

Community Level Variables. When examining community level variables based on race/ethnicity, findings revealed that for Hispanic and non-Hispanic White women reporting to have worked the prior week, they were more likely to experience a threat of violence compared to more severe forms of sexual assault. While working may increase the chances of coming into contact with perpetrators, perhaps working allows these women more resources that may serve as a buffer to being sexually victimized. Additionally, perhaps these women's work schedules also preclude them from dating or being home thus protecting these women from potential perpetrators.

Hispanic women were more likely to experience an attempted sexual assault with each time they moved residences. For every increase in the number of times moved, Hispanic women were more at risk of experiencing an attempted rape compared to a threat only. Perhaps this finding is due to the lack of community ties an individual acquires the longer the time spent at one residence. For example, according to Sampson and colleagues (1998) some neighborhoods have "collective efficacy," which is defined as a mutual trust among neighbors combined with willingness to intervene on behalf of the common good of the community. These researchers contend that some neighborhoods provide a protective factor against crime because of the cohesiveness among neighbors through close social networks. For the Hispanic women in this sample, increasing the number of moves may decrease the chances of acquiring critical social networks and community ties.

In addition, while there is no way of knowing if the Hispanic women in the sample were born in the United States or immigrated, perhaps this contradiction could in part be explained by acculturation or the process of adopting to behaviors or beliefs of another ethnicity. Specifically, research conducted by Cuevas and Sabina (2007) suggested that Hispanics who “adopted an Anglo orientation” were at higher risk of being victimized. These researchers concluded that having traditional Hispanic values may be a protective factor against victimization. Most (81%) of the Hispanic women in the sample were not married. Perhaps for Hispanic unmarried women may be at higher risk without close family connections regardless of community ties (Cuevas & Sabina, 2007).

Theoretical Implications and the Application to Sexual Assault

A number of researchers using multiple theories have tried to assess the etiology of violence against women. One finding seems consistent among research, in order to fully understand violence, it is critically important to examine the social and ecological context in which the victimization took place (Neville et al., 2004; Ullman et al., 2007). According to Little and Kantor (2002) “ecological models offer a broad-base conceptualization that take into account the complex interactions among individuals, family, community, and society risk factors...” in the occurrence of violence (p. 34). Statistically significant results were revealed at each contextual level in this research, suggesting that the understanding of sexual violence may be better understood using ecological theory. Ecological theory allows for researchers to investigate multiple demographic variables that employ individual, familial, and community level influences to draw conclusions regarding human interactions.

Ecological theory can be utilized to help in understanding the complex dynamics or underlying factors that contribute to severity of sexual victimization. Multiple processes function within and across each system. In order to fully understand sexual assault severity, these underlying processes should also be explored. For example, in this research, relationship to the perpetrator had a significant impact on severity of the sexual assault. Perhaps, the closer the relationship distance, the more devastated the victim will feel following the attack. Some authors investigating acquaintance versus stranger rapes have even suggested that acquaintance rape “is often even more traumatizing than rape by a stranger” (Bellows, n.d., para. 1). For a victim, having known her perpetrator may have an even larger impact on her emotional well-being and thus may impact her functioning within multiple systems. It would seem, for many individuals, trust is an underlying mechanism in most close relationships. In family relationships, trust is perhaps even more pronounced. When that trust is broken as a result of a sexual assault within a family, victims are frequently left with a sense of alienation from social support networks, especially if the victim is not believed and may also feel even more vulnerable to future attack (Bellows, n.d., para. 2). Additionally, reporting a family member to the police may be more difficult for some women when lacking a social support network thus increasing feelings of alienation.

Another important finding this research revealed was that children present in the household was a protective factor for most women. This is a critical finding as it counters most intimate partner violence literature. Perhaps, ecological theory may help to explain how underlying mechanisms at play within these relationships protected women from more severe forms of sexual assault. Of course, based on this research, there is no

way of knowing if a child present in the household was a biological child of the woman or the perpetrator. Perhaps, women living with their biological children in the household avoided possible risky situations or individuals in order to protect a biological child. While all the women in this sample were victims of sexual assault, women living with children reacted or behaved differently in order to avoid more severe forms of sexual assault. Additionally, most the women in the sample were not married. When examining the domestic violence literature, perhaps the reason why having children in the household induced more severe forms of physical abuse was a result of the marital relationship or close intimate relationship and the child's biological connection to the parent. It would not be difficult to imagine, for a woman being beaten, one way to intensify her humiliation or trauma would be to commit the offense in front of her children.

Additionally, perhaps ecological theory may help to explain why working women suffered less severe forms of sexual assault. Specifically, women who reported working the previous week were less likely to be victims of more severe forms of sexual assault. Again, all the women in the sample were victims but these women reacted differently when the attack occurred. Perhaps working gave these women more confidence or the ability to fight off an attack. Bringing income into a family may have empowered these women and thus created an increase in self-esteem and confidence. Confidence may play a role as an underlying process within the individual and the relationships dynamics within her family. Working may positively or negatively influence the dynamics within her relationships and family. These dynamics may have helped to shape how she reacted to a potential threat of sexual assault.

Examining the severity of sexual assault using ecological theory provides a framework for treatment and prevention formulation. However, “like other social problems, violence against women is a complex, multi-determined phenomenon that is difficult to prevent through single or isolated strategies” (Reppucci, Woolard, & Fried, 1999, p. 391). For this reason, sexual victimization must be examined through an ecological lens in order to capture all systems at play. Those working with sexual assault survivors can get involved at the individual, familial, or community level to address both intervention or prevention approaches. For example, from a prevention perspective, exploring the individual level, this research revealed increased risk for younger women in the sample. Young women can be further educated on possible situations that increase chances of contact with perpetrators. For example, young women could be educated on situations or relationships that predispose women to increased risk that could possibly be changed such as living arrangement, level of skill in communicating during an argument, or ability to recognize risky behaviors such as drug use or alcohol consumption.

In addition, possible reporting practices should be examined to assist women prior to any incident. Perhaps the knowledge of how to report sexual victimization experiences may help some women to report. Reporting sexual assault still appears to be an issue for many women regardless of race/ethnicity. It is also important to recognize the type of offender/victim relationship may intensify reluctance to report (Department of Justice, Office on Violence Against Women, 2011). As previously discussed, many African American women may be more reluctant to discuss sexual assault due to an overall mistrust of authorities. This mistrust may be heightened if the perpetrator is a family member and the victim feels a loyalty to the perpetrator (Boyd-Franklin, 2003). Every

attempt should be made to make sure each victim feel safe and are asked questions in an environment that fosters trust and cooperation. Additionally, many women do not acknowledge an incident as rape and therefore are reluctant to report the incident. Educating women on what exact behaviors are included in the definition of sexual assault could help in reporting practices. Sexual victimization can involve a broad array of offenses such as sexual harassment, fondling, or stalking behaviors. Early education based on age appropriate programs in schools or community organizations could help to foster a better understanding of sexual assault. Specifically, implementing “developmentally-appropriate curricula on sexual violence in all public elementary, middle, and high schools” could be introduced to enhance prevention efforts (Department of Justice, Office on Violence Against Women, 2011, p. 21).

From an individual level, an intervention for women could include a culturally competent assessment tool that is linguistically and culturally specific to examine any possible psychological difficulties as a result of the victimization experiences. For example, first responders or those that come into contact with victims soon after an incident such as police officers, medical personal, or crisis therapists could be trained using an culturally competent assessment tool to gauge current physical and psychological functioning in order to lessen the chances of developing severe post-sexual assault responses. Often the immediate concerns following a sexual assault involves the examination of physical injuries, testing for sexually transmitted diseases, pregnancy, and the gathering of forensic evidence; however, following a sexual assault nurses exam or a SANE, a psychological functioning assessment could be administered. Additionally, counselors working with rape survivors should have an understanding and be trained in

culturally competent techniques to better serve victims of color. A multidimensional assessment tool informed by ecological theory could help to identify individual temperament and community or individual resources available to a survivor in order to help long-term mental health functioning. Given that some racial/ethnic differences were revealed in this research, it is important for such differences to be recognized in any prevention or intervention strategy.

An intervention or prevention program focusing on the familial level should also include education regarding vulnerabilities following divorce or separation. Education should focus on the awareness of activities that may place these women at increased risk of sexual victimization and possible relationships that may pose a threat. Additionally, support from family or friends could also help to foster the recovery process. Public service messages could help educate family and friends in offering encouragement and guided instructions on how to report and better serve victims of sexual assault (Department of Justice, Office on Violence Against Women, 2011). These messages should also better inform individuals on techniques that do not foster victim blaming but put the responsibility of the assault on the perpetrator.

A community intervention or prevention activity should begin with an understanding of the community. It is important to analyze a community in order to determine underlying structures that may support or encourage sexual violence. From the current research, it was revealed that smaller communities may be at particular risk and certain community engagement activities may place women at great risk of more severe forms of sexual assault. Community churches, schools, hospitals, learning centers, or advocacy groups could help to determine what structures, individuals, or groups in a

particular community may be encouraging and reinforcing sexual victimization. A community assessment to determine the needs and strengths of a community may be needed. The goal is to intervene before victimization; however, when sexual victimization does take place a community must provide a linkage to community resources and advocacy.

Additionally, in addressing sexual assault, it is critically important for providers that serve under represented communities (e.g., minority or tribal communities, gay, lesbian, bi-sexual, transgendered, women of color, and men) to have access to culturally and linguistically-specific materials in order to design community specific interventions, prevention, community engagement, public education, and awareness efforts (Department of Justice, Office on Violence Against Women, 2011). Ultimately, any response to sexual victimization should help to shape or redefine sexual assault as a community or public health issue and not an individual problem (Department of Justice, Office on Violence Against Women, 2011). Simply raising awareness of sexual victimization in a community may be a beneficial first step.

Reducing Severity of Sexual Assault

This research investigated predictors of sexual assault severity but there may be some practical behaviors that may help victims to reduce the actual severity of the sexual assault. Anecdotally, there are some suggestions on how to reduce severity. For example, when being attacked, a victim may lessen severity of the sexual assault by offering little resistance. Also, victims may choose to talk to the perpetrator as this method may help delay the attack and allow the victim to escape the situation. If there

are bystanders, make sure to alert others of the situation, letting them know the contact is not wanted or consensual.

Policy Implications

Although laws prohibiting violence against women have existed for some time, societal attitudes regarding laws protecting women were “ambivalent” (Friedman, 1993, p. 215). Violence perpetrated against women has rarely been recognized as a criminal act and has received little or no formal sanctions from local or state policing agencies (Ames & Dunham, 2002; Jolin & Moose, 1997, Murphy, 1997). Societal ambivalence toward the treatment of women can be traced throughout history. Historically women, children, and minorities lacked the legal resources to address issues of inequality. For example, for many years, it was impossible for a husband to be charged with raping his wife. “The police often viewed spousal violence as a ‘private matter,’ and charges were only likely to be laid if there was a death or serious injury” (Bala, 2008, p. 272). Violence inflicted by the “head of the house” was seen as an effective method to control his “unruly” wife (Bala, 2008, p. 272).

In an attempt to reduce violence among intimates, in 1994, with bipartisan support, Congress passed the Violence Against Women Act as a part of the Violent Crime Control and Law Enforcement Act of 1994 (PL-103-322) (Merchant, 1998). As a comprehensive approach to domestic violence and sexual assault, the Violence Against Women Act [hereafter referred to as the VAWA] introduced and combined a broad array of legal and practical reforms. The VAWA emphasized establishing and maintaining collaborative relationships among criminal justice professionals to better serve victims of violence (Seghetti & Bjelopera, 2012). This approach assisted in joining law

enforcement officials, prosecutors, and victim service providers in developing an individualized course of action, increased protection, and to provide the victim with additional community-based resources.

Additionally, not only did the VAWA afford certain rights for victims of domestic violence, sexual assault and stalking, it also brought a cultural awareness to pervasive messages that often reinforce violence against women (Zackery, 1998). Unfortunately, although the VAWA has provided a vehicle for funding for victims of domestic violence, much of the funding still goes to support services for victims of physical violence and neglects sexual assault and stalking. The VAWA did not specify equal distribution of funds among all types of violence against women (Roe, 2004).

On February 12, 2013, the United States Senate passed S. 47, the reauthorization of the VAWA. On February 28th, the House followed suit and also passed S. 47. On March 7th, 2013, President Obama signed S. 47 into law. Some specific changes to increase awareness of sexual assault included: 1) a modification in the definition of sexual assault to include situations in which the victim lacks the ability to consent; 2) grant opportunities to enhance or augment criminal justice policies; 3) protocols and training to investigate sexual assault, addressing the needs of incarcerated victims; and 4) processing rape kits more quickly to reduce the backlog. A new direction for the VAWA reflects a notion that highlights prevention rather than intervention. Although some would likely argue that victim services and programs funded by the VAWA today ultimately help to safeguard future generations, the emphasis of the VAWA lies predominately in an intervention model of assistance.

As with many social problems, there is an overall lack of strategies focusing on prevention as opposed to intervention. The current research can be used to inform prevention strategies. For example, programs could be implemented to educate individuals on possible ecological factors that predict severity of sexual assault. Educational programs could target specific communities or individuals at greater risk. Prevention focusing on skill building techniques to avoid victimization may be beneficial for many communities. Teachers and other school personnel could receive training on how to instruct students on techniques to promote attitudes, behaviors or social conditions to reduce and ultimately eradicate factors that contribute to sexual victimization. Education could also be provided in collaboration with other involved systems including criminal justice, mental health, or health care facilities.

Although more of the VAWA money has been designated for research, Bala (2007) suggests more funds should be available to communities, organizations, or academia to advance empirical and evaluative studies in the field. Unfortunately, a roundtable convened by the Department of Justice, Office on Violence Against Women, the White House Council on Women and Girls, and the White House Advisor on Violence Against Women (2011) insisted that often “current research is conducted in silos, and research is rarely disseminated to practitioners in a user-friendly and applicable way” (p. 14). An emphasis in methods to disseminate research for use by criminal justice, medical, and allied professionals in the field should be a focus in legislative attempts to prevent or intervene in sexual assault incidents. A research website highlighting intervention or prevention promising practices could be developed

specifically for those individuals working in the field. This website could also provide technical assistance to individuals and communities in need.

Perhaps some of the intervention/prevention strategies previously discussed could be strengthened by the Affordable Care Act. Specifically, the Affordable Care Act [hereafter referred to as the ACA] was passed by Congress and was signed into law on March 23, 2010 by President Obama. On June 28, 2012 the Supreme Court rendered a final decision to uphold the ACA law (U.S. Department of Health and Human Services, n.d.). With the passage of the ACA, victims of domestic, sexual, and dating violence, can now access services for previous injuries sustained so that any medical condition will not worsen. The ACA also provides for screening and counseling services for survivors and allocated 1.5 billion dollars over the next five years to states, tribes, and territories to develop and implement training in early childhood health programs (Futures Without Violence's National Health Resource Center on Domestic Violence, 2012). The ACA has made great strides in shifting the overall health model from "disease treatment model to prevention and health promotion" (Futures Without Violence's National Health Resource Center on Domestic Violence, 2012, p. 3). The National Prevention Council was created to "provide coordination and leadership at the Federal level, with respect to prevention, wellness, and health promotion practices, the public health system and integrative health care" (Futures Without Violence's National Health Resource Center on Domestic Violence, 2012, p. 3). Perhaps with the passage of the ACA, early education and training focusing on prevention of sexual violence is now possible.

Limitations of this Research

The implications of the findings for this research can only be considered within the strengths and limitations of this research. Several problems were encountered by using the NCVS data for this study. While the NCVS is used to collect an abundance of crime data, all sexual victimization experienced by participants may not have been captured by the NCVS. Specifically, “crimes that the NCVS collects data on make up a small part of all criminal offenses committed in the United States” (James & Council, 2008, p. 36). Additionally, when examining sexual assault, some behaviors such as sexual harassment were not included as a “crime” and thus may not have been included during the interview process with participants. These behaviors may have been traumatic and interpreted by the victim as a crime but were not included in the NCVS data. Moreover, there may have also been problems with how crimes were defined or interpreted by participants. Specifically, Mosher and colleagues (2002) concluded that NCVS participants may not have known crime definitions as these crimes may vary across cultures or social groups and thus were not reported by respondents and included in this research (Mosher et al., 2002).

Another issue identified, if a perpetrator was a current or former partner, there was no way to ascertain if the victim/perpetrator were living together at the time of the incident (Dugan, 2011). Respondents may not have felt comfortable disclosing information if the perpetrator was still sharing the same residence. Additionally, participants might have unintentionally neglected to tell the interviewer information as the crime events may have been forgotten or outside the reporting period.

Unfortunately, there were not enough women of color to adequately capture their sexual assault experiences. Research suggests that the rates of underreporting sexual assault involving women of color may be particularly high (Starzynski et al., 2005). While these data could be used to perform analyses on non-Hispanic White, non-Hispanic Black, and Hispanic women, there is evidence to suggest that Native Americans have a high rate of sexual assault and yet could not be included in this research (Tjaden & Thoennes, 2000). This research revealed questions as to whether the survey could adequately identify the sexual assault experiences for women of color. Unfortunately, the NCVS also neglects some of the most at-risk groups such as the homeless, incarcerated, or highly mobile individuals (Dugan, 2011).

Regarding sampling techniques, it is also difficult to collect a “sample of residents to estimate rates of victimization for the entire population” (Mosher et al., 2002, p. 158). Additionally, Dugan (2011) contends that the sampling frame utilized the address of the household and not the individual. This made it impossible to follow families or individuals over long periods of time. Future research could focus on different sampling techniques in order to obtain individual data across time.

In addition, some data needed for this research were missing. Respondents may have been unwilling or unable to answer all questions asked. Perhaps participants were reluctant to share more details because of the sensitive nature of the victimization experience. Additionally, for this research, only victims of sexual assault that chose to report were included but there may be difference in sexual assault experiences of those women that chose not to report their experiences. Moreover, the use of proxy interviews may have led to underreporting of sexual victimizations. Specifically, according to the

U.S. Census Bureau's NCVS Interviewing Manual for Field Representative (2012) "a proxy interview is one in which someone other than the intended household member answers the interview questions for another eligible household member" (C1-18). Proxy interviews may have led to underreporting especially if the perpetrator was conducting the proxy interview or was living in the same household (Dugan, 2011). This may explain why data examining sexual assault may have been lacking. Additionally, while the data used for this research was informative, the NCVS is actually used as an investigative tool examining general crime victimization and not sexual assault exclusively (Dugan, 2011). While the NCVS has made extensive efforts to combat underreporting of crimes involving violence against women, there are still concerns regarding this issue (Dugan & Apel, 2005).

Directions for Future Research

Using secondary data for this research proved to be somewhat problematic. Specifically, questions were structured for the NCVS as a general crime victimization survey and could not be tailored specifically for this study. Perhaps future research could focus on designing and implementing a survey to investigate sexual assault victimization experiences exclusively. Or, perhaps, a qualitative study may be the best method to capture sensitive information to further examine the lived experiences of survivors. In-depth interviews conducted with survivors may be a better method to obtain context or meaning of these experiences for each survivor. Questions could include information on previous and current relationships, perceived level of severity experienced by the victim, and the victim's perceived level of resiliency before and after the sexual assault. Resiliency, or one's "ability to overcome adversity... by tapping into strengths and

utilizing effective coping mechanisms,” is an important topic in the sexual assault research (Suzuki, Geffner, & Bucky, 2008). Specifically, a future study could examine if resiliency and perceived level of severity are correlated. Moreover, this research could also explore possible difference in dynamics experienced when the offender is a stranger or known to the victim. A sample consisting of victims of both stranger and acquaintance rape could be collected to determine if differences exist. Additionally, perhaps questions could also investigate a victim’s level of fear from an attack. Research suggests that a victim’s fear of crime may either safeguard against an attack or similar to domestic violence survivors, may induce an attack. New questions and information could be gathered during interviews, making scale development based on respondent experiences possible. A clinical sample of survivors could be recruited for interviews. This might also safeguard survivors as a support network of mental health professionals could be in place if survivor memories during the interview were too difficult. Survivors would have resources before, during, or after an interview to process emotions with a trained mental health professional.

Additionally, this research revealed the need for more research examining factors unique to victims of sexual victimization especially women of color. A qualitative study specifically geared toward women of color would be beneficial to the field. Little is known about possible prevention or intervention strategies that are culturally and linguistically developed specifically for minority women. Many current resources available to survivors were developed based on the responses and experiences of White survivors (Low & Organista, 2000; Neville et al., 2004). By neglecting women of color in the rape research, researcher and allied professionals will continue to marginalize the

experiences of all minority survivors. Future studies should investigate possible risk and protective factor specific to women of color.

Conclusion

The purpose of this research was to examine if ecological factors predicted severity of sexual assault among a sample of non-Hispanic Black, Hispanic, and non-Hispanic White women. Findings suggest that an ecological perspective contributes to the overall understanding of sexual assault severity. Specifically, significant predictors were found at each contextual level investigated. Marital status including divorced, separated, or widowed women, and relationship to offender such as current or former spouse, other family member, boy/girlfriend, friend, and acquaintance proved to be risk factors for severity of sexual assault among the sample. In addition, older age, other victimization experiences, children present in the household, and work the previous week were found to have a protective influence on severity of sexual assault. The current findings also underscore the importance for additional research investigating women of color as protective and risk factors were present for each race/ethnicity examined. Neglecting to identify key predictors of sexual assault severity among minority women may further marginalize and alienate women of color. Although research exists on sexual assault, little information existed on severity of sexual assault. This research adds to the body of knowledge regarding severity of sexual assault. While a severity scale was not developed, future research could be informed by the current research findings.

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